

SEPTEMBER, 1953

MATERIAL FLOW

HANDLING • PRODUCTION • PACKAGING AND SHIPPING

IMPROVED SPACE UTILIZATION

PAGE 54

CONTINUOUS HANDLING BETWEEN BUILDINGS

PAGE 72

WHEN HANDLING IS RESTRICTED, KNOCK DOWN SOME WALLS

PAGE 80

A CONVEYOR WITH "GRABBS" CUTS INTER-FLOOR HANDLING COSTS

PAGE 88

OVERSEAS SHIPMENT

PAGE 127

HEALTHY SCALES

PAGE 128

Flow Circulation

35,294 FLOW BASIC

104,247 FLOW QUARTERLY

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What it Contains

- Complete Caster recommendations for all industries, institutions, services, etc. using mobile equipment.
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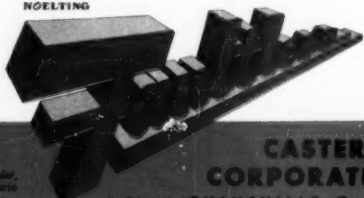
To help you with your handling problems... loads, floor surfaces, types of wheels... you should have Faultless Caster Catalog 157.

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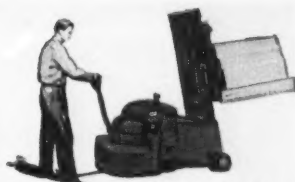
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***TRANSEVEYOR PALLET TRUCK**—Has overall length of only 29½" (less forks), makes possible right angle storing of 48" x 48" loads from aisles narrow as 6½ feet. For greater utilization of floor space, quicker access to work areas. Platform type also available.



"101" **TRANSPORTER**—Moves tons of your product at the touch of a button... raises load to moving height in seconds... works all day for as little as pennies.



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FLOW • SEPTEMBER, 1953

Before you buy— Let figures prove how much you save with **"KEYED-FOR-THE-JOB"** **Automatic Trucks**

There's only one **RIGHT** truck for each material handling job... Automatic makes them **ALL**...saves you money with trucks "Keyed-For-the-Job."

***NOTE THREE NEW TYPES.** It will pay you to be sure you're getting a truck that's "keyed" for the specific job in *your* plant. For a truck too large, too small or in any way inadequate to handle your product, may not give you the substantial saving that would pay its cost in a reasonable time.

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Mail the coupon for facts on Automatic "Keyed For the Job" trucks.

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Chicago 20, Illinois

☐ Send me facts on Automatic "Keyed For the Job" Electric Trucks.

Company name

By Title

Street Address

City Zone State



B & O Reduces Operating Expenses 4.04% During 1952, Net Income Higher!

According to the 126th Annual Report of the Baltimore & Ohio Railroad Co. for the year 1952, operating revenues dropped by 1.91%, *but increased efficiency brought operating expenses down by 4.04% compared with 1951.* Net income of \$27,308,828 was substantially larger than net income for 1951!

What, you might ask, does all this have to do with Pittsburgh Bulkheads? Simply this: the adoption of Pittsburgh Bulkheads by the B & O is typical of this well-managed railroad's ability to spend money where it will help cut costs.

It was the first railroad to purchase these modern, time and dunnage saving partitions for holding cargo securely. Made of heavy steel tubes and welded wire, they are movable, returnable, easy to install. Pittsburgh Bulkheads enable you to do away with lumber, straps, anchor plates and reduce labor costs. They can be installed by two men in two minutes... will pay for themselves in about twenty trips.

For information, write Dept. F, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.

BULKHEADS

a product of **Pittsburgh Steel Products Company**

A Subsidiary of Pittsburgh Steel Company

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MATERIAL FLOW

SEPTEMBER, 1953
VOLUME 8, NO. 12

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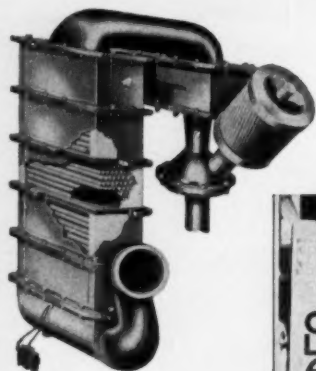
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Published Monthly

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ELIMINATE CARBON MONOXIDE, FUMES AND ODORS FROM LIFT TRUCKS



OCM CATALYTIC EXHAUST

(A Houdry Catalyst Development)

Reduces CO to a safe level

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The OCM CATALYTIC EXHAUST replaces the original muffler without changing clearances . . . and is easy to install.

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★ Assures absolute safety for employees, and increases efficiency.

★ Makes possible the operation of gasoline-powered equipment anywhere, thus reducing costs.

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★ Gives 2000-2500 trouble-free hours of operation, after which catalyst is quickly replaceable . . . and at low cost.

★ Tested and listed by Underwriters Laboratories, Inc., and used in many of the nation's leading industrial plants.

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WAYNE, PA.



NOTE. This company also makes catalysts for air-pollution control, power and energy, and waste heat recovery for industrial operations ranging from metal coating to oil refining. Write for details.

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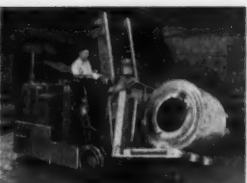
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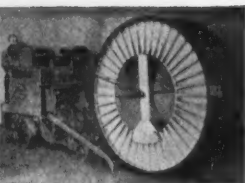
Die Handler



Pallet Retriever



Uspender



Cable Reel Handler



Side Dump Revolving Unit



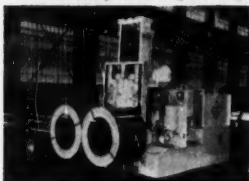
Roll Handler with Apron



Tin Plate Clamp



Bale Clamp



Twin Coil Handler



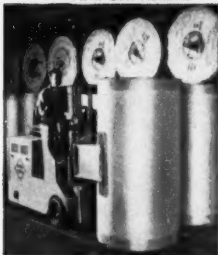
Rotary Scoop



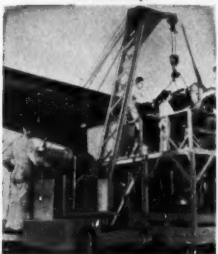
Roll Piercing Truck



3-Ton Low Lift; 1-Ton Crane



Roll Clamp



Special Crane



Carton and Drum Handler

ELWELL-PARKER

trucks for every type of handling

Only a FEW examples of Elwell-Parker's ingenuity and enterprise in meeting unusual materials handling requirements are shown . . . Not infrequently, the peculiar shape or nature of a load makes a standard truck impractical. In producing attachments or units for such needs, Elwell-Parker draws on its 45 years of experience supplying power trucks for over 300 industries . . . From its line of 87 different sizes and types, Elwell-Parker can usually select a standard truck for the job. If not, ask your E-P man about a unit precisely suited to your needs. The Elwell-Parker Electric Co., 4239 St. Clair Avenue, Cleveland 3, Ohio.



NEW ATTACHMENT FOLDER describes and illustrates in detail the many attachments for E-P fork trucks. Write for your copy.

ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

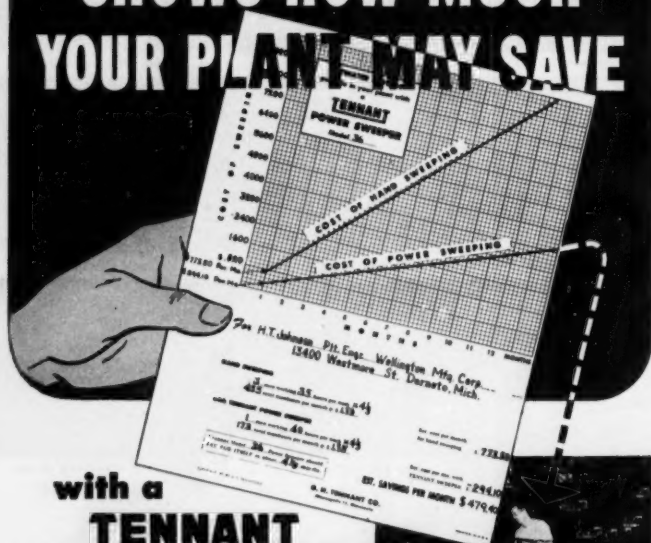
Established 1893

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Yours for the asking!

Free, accurate graph

SHOWS HOW MUCH YOUR PLANT MAY SAVE



with a **TENNANT POWER SWEEPER**

How much do you actually pay for hand sweeping in your plant? And how much could a TENNANT Power Sweeper save you?

You'll get answers to these questions in a specially prepared *Cost-Savings Graph* like the one shown above.

It's a frank, conservative estimate of your plant's probable labor savings, based on a personal survey. It's attractive, carefully drawn, sensibly practical. And—it is *free*; no cost or obligation.

OFTEN REPLACES 3 to 12-MAN CREW

If yours is a typical plant, your graph will probably show that one TENNANT Power Sweeper could easily replace a crew of 3 to 12 men with push brooms . . . and would pay for itself in about 90 days or so. Most plants find their savings are in this range. Yours should be, too.

Why not get the facts in handy visual form? You see, month by month, the labor savings you'd make with a Tennant Sweeper. Ask for your *FREE GRAPH* today.

*Write today
FOR FULL DETAILS*



INDUSTRIAL FLOOR MACHINES

CREATORS OF THE TENNANT SYSTEM OF FLOOR MAINTENANCE—MANUFACTURERS OF EQUIPMENT AND MATERIALS FOR MAINTENANCE OF FLOORS, DECKS, ROOFS, HIGHWAYS.

Special in Franchise Cities



EXCLUSIVE FEATURES, such as instant reverse, automotive steering, make it easy to **SAVE EXTRA TIME** with a Tennant Sweeper. Gas or electric; various sizes.



HAS BIG SWEEPER CAPACITY but is small enough for narrow aisles. A NEW model; speed range 2-8 mph. Pays for itself fast.

G. H. TENNANT CO. 2876 N. 2nd Street

Minneapolis 11, Minn.

Yes, without cost to us, please estimate our probable savings with a Tennant Sweeper; and send us free **COST-SAVINGS GRAPH** and details on ☐ Sweeper Bulletins; ☐ gas model; ☐ electric.

NAME _____

FIRM _____

ADDRESS _____

LETTERS to the editors

Presents Packaging Puzzle

To FLOW:

We supply record cards to surveyors, oil field and mining engineers, and wish to enclose about 20 of these cards (6" x 8") in a case which they could carry on the job.

The important feature, however, must be a means of exposing the top card so that recording can be done on it without removing the card from the case.

Knowing the packaging trade as you do, what is the most economical way to make a box that will accomplish this? Does the packaging industry already offer something as a stock item, or would it require special set-up? Also, what would be the most suitable material—cardboard, metal, plastic, leather, etc.? Can you refer us to a few leading firms who can supply this container?

Clem Ernst
Sidney, Ohio

Reader Ernst poses a problem which we believe requires special treatment. Perhaps some of our readers in the packaging field can offer some suggestions or a definite solution.

Another Use For Plastics

To FLOW:

We notice in your June issue, page 120, that you describe plastic shrouds, and since we have a storage problem in our plant, would appreciate descriptive literature and prices of these shrouds in the various sizes they are manufactured.

R. C. Mattka
Curtis Companies Inc.

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NEW DESIGN ... MASS PRODUCTION ...
SAVES AS MUCH AS **25%**

TURNABOUT®

ADJUST • A • FORK

HYDRAULIC LIFT TRUCK

with interchangeable forks

AS LOW AS
\$350
for complete
truck

Capacity
2500 lbs.
4" Standard Lift

The Rack Turnabout is another milestone in material handling history. Never before has the manual lift truck been offered with so many time and money-saving features.

• **A QUALITY PRODUCT PROPERLY PRICED**

Realistic low price is made possible by improved design and mass production techniques.

• **UNCONDITIONALLY GUARANTEED**

The Rack Turnabout is unconditionally guaranteed against defects in workmanship or materials for one year.

• **INTERCHANGEABLE FORKS**

Forks are easily changed from one size to another in a matter of minutes. 25" or 27" width adjustment is a built-in feature.

• **IMMEDIATE DELIVERIES**

Rack Turnabout Lift Trucks are carried in stock by all Rack agents in principal cities.

Easily interchangeable forks are available in five standard lengths. Forks may be adjusted on truck frame to provide 25" or 27" width.

TRUCK COMPLETE

- with either 30", 36", 42" or 48" forks \$350
- with 60" forks \$390

RACK HYDRAULIC EQUIPMENT

CORPORATION

CONNELLSVILLE, PENNSYLVANIA

AGENTS IN PRINCIPAL CITIES UNITED STATES, CANADA, EUROPE

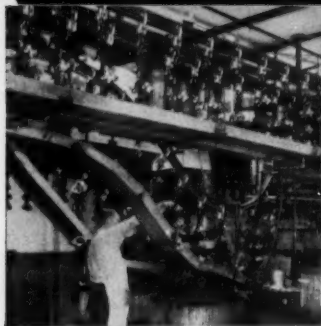
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Vertical curve of Universal Cable Conveyor inclines to convenient work height, utilizes overhead space.



BUSCHMAN CONVEYOR
costing only **\$3800.00**
SAVES \$7000.00 ANNUALLY

at
Honeywell



Conveyor carrier has three hooks. Placement of regulator valve on any hook indicates operations to be performed.

A BUSCHMAN OVERHEAD CABLE CONVEYOR SYSTEM replaces former manual handling method at MINNEAPOLIS-HONEYWELL REGULATOR CO. with resulting savings of \$7000.00 annually on an investment of \$3800.00. This does not include recovered floor space, reduced aisle traffic, easier working conditions and increased production.

It is anticipated that the overall total savings that will be realized by Minneapolis-Honeywell improved production methods in this instance is approximately \$16,000.00 per year.

Smoother, reduced-handling operations on continuous flow, high production lines with comparable savings are being accomplished with BUSCHMAN Overhead Cable Conveyors in hundreds of plants in all industries. Why not investigate the possibilities of similar savings in your plant operations?

Write for NEW Bulletin No. 40

Representatives in Principal Cities

THE E. W. BUSCHMAN CO.

4450 Clifton Ave.
Cincinnati 32, Ohio



Canadian Licensee: J. A. McKechnie Ltd., Toronto 13, Canada
Circle No. 25 on Reader Service Card for more information

LETTERS

Continued

The development of these shrouds was instigated by Army Ordinance with the cooperation of Shell Oil and Marvellum Paper Co., and final standardization was accomplished by National Plastics Co., Springfield, Mass. Reader Matka was directed to the latter for complete information.

Needs Special Tote Box

To FLOW:

Could you advise us if someone manufactures a nesting type tote or shop box which is stamped from a single sheet of steel, has rounded inside corners, rolled edges with a one-inch lip, and is drip-proof. Its outside dimensions should be 20" x 14" with a six-inch inside depth. The inside width should be 12 inches at the top and taper to 9½ inches in the bottom.

A. H. Wehr
Minnesota Supply Co.

FLOW knows of only one manufacturer making a container to fit Reader Wehr's specifications, and this company's name has been forwarded.

Elementary, Mr. Watson

To FLOW:

There is a concern in the U.S. that makes a conveyor for transporting pressed clothes from the pressing room to the delivery room. It is my understanding that this conveyor has an electrically driven flexible screw which carries the clothes hangers along a tube. I have searched everywhere without finding its manufacturer and ask your help.

M. T. Murray
Murray Sales Company

Reader Murray came to the right "Private Eye" to do his sleuthing. FLOW directed him to the manufacturer promptly.



ARO

1000 pound AIR HOIST

for

SPEED...

Lift rate...
over 40 ft. per minute!

SIZE...

Overall length 10 $\frac{1}{4}$ "
weighs only 28 $\frac{1}{2}$ lbs.

SAFETY...

Better all
safety requirements!

ACCESSORY
EQUIPMENT



HOIST TROLLEY



HOSE TROLLEY



CHAIN BASKET

The Aro Equipment Corporation, Bryan, Ohio

Offices in All Principal Cities

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ARO

AIR HOIST

Also . . . Air Tools . . . Lubricating
Equipment . . . Aircraft Products . . .
Grease Fittings

The Aro Equipment Corporation, Bryan, Ohio

Please send full details on the new ARO Air Hoist, without obligation.

Name

Company

Street

City State

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Step Up Production...



Speed Up Delivery...



(Photos courtesy of Jered Engineering & Mfg. Co.)

with Tough, Economical U. S. Royalite!

Trays and tote boxes individually designed to handle intricate and delicate parts can be made of U. S. Royalite on a faster, more economical basis than with conventional materials. This modern thermoplastic can be quickly formed into a wide range of shapes with integral supports and sections with no lost space... actually stepping up production by absorbing shock, cutting waste and adding weight-saving efficiency! Versatile U. S. Royalite speeds up handling, cuts product breakage in transit, cuts transportation weight costs. U. S. Royalite shipping covers and handling boxes can be engineered and fabricated to fully protect machine parts from unnecessary abuse, dust and foreign matter.

See how U. S. Royalite fits your specific production and handling problem. Write Dept. FR-5 for full information.

CHECK LIST OF U. S. ROYALITE ADVANTAGES:

- ✓ Lightweight
- ✓ Tough
- ✓ Non-splintering
- ✓ Non-warping, non-corrosive
- ✓ Impervious to oils, most acids, alkalies
- ✓ Highly resistant to impact
- ✓ Waterproof
- ✓ Easily formed on low-cost tools
- ✓ Prefinished to your specifications
- ✓ Color-permeated throughout
- ✓ Available in sheets
- ✓ Stable under changing atmospheric conditions
- ✓ Exceptional electrical insulating qualities
- ✓ Low rate of heat conductivity

U.S. ROYALITE

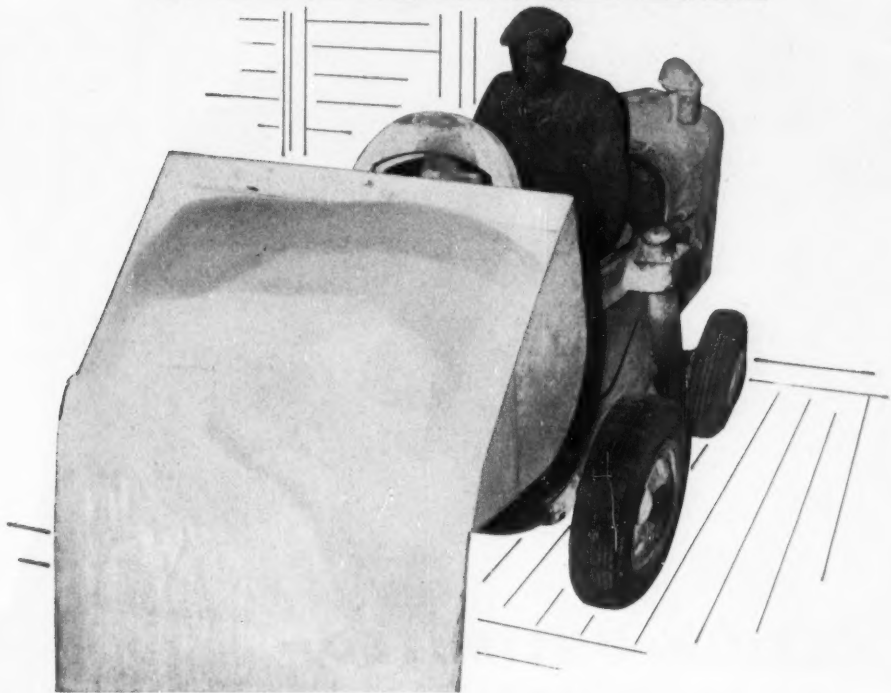


UNITED STATES RUBBER COMPANY

2638 NORTH PULASKI ROAD, CHICAGO 39, ILLINOIS

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PAYLOADER



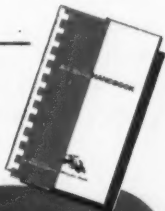
For Fast, Flexible **BULK-MATERIAL** *Handling!*

"PAYLOADERS" spell flexibility and low-cost in the handling of fertilizers, chemicals and other loose, bulk materials. And these tractor-shovels can go to work cutting handling costs *right away*. No expensive investment or plant rearrangement is required before you begin reaping "PAYLOADER" benefits. They travel swiftly indoors and out and maneuver in close quarters. They scoop-up, carry, load, dump, spread . . . lift and lower . . . push and pull. They load and unload boxcars of bulk. In fact,

"PAYLOADERS" are being used for so many jobs in so many plants that they can probably cut handling costs for you too. Get all the facts from your "PAYLOADER" Distributor or write The Frank G. Hough Co., 757 Sunnyside Ave., Libertyville, Illinois.

FREE HANDBOOK

Tells how and where to look for signs of inefficient bulk-materials handling . . . how to analyze, organize and set up an efficient handling system. Plus many useful tables and data. Write for "Bulk Materials Handbook."

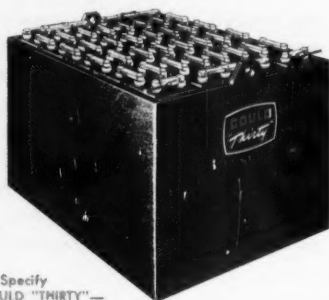


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ACTION UNLIMITED - THANKS TO BATTERY POWER!

Modern battery-powered industrial trucks have higher lifts, greater maneuverability, shorter turning radii and interchangeability of attachments necessary to meet today's material handling needs. Batteries for these versatile units have kept pace with progress, too. Greater ampere hour capacity gives them unlimited action all day long, without letdown. And remember—only battery trucks are silent, safe and fume-free. For industrial trucks, there's *no* power like Gould Battery power.



Specify
THE GOULD "THIRTY"—
America's Finest
Industrial Truck Battery

GOULD INDUSTRIAL BATTERIES

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries
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FLOW • SEPTEMBER, 1953



DOW CHEMICAL saves *thousands of dollars annually* with **BAKER TRUCKS**

■ At the Pittsburg, California, plant of The Dow Chemical Company, five Baker Fork Trucks expedite handling of material in production, storage and shipping departments.

Two of these trucks transport 16" cylinders of ammonia—twelve at a time—from production to warehouse and from warehouse to shipment, and load them directly into boxcars or highway carriers.

The remaining trucks speed handling of chemical

products in bags or cartons on pallets—taking them from production to storage, where they are high-tiered to conserve floor space, and from storage to shipment, where further man-hour savings are made in loading.

Material was formerly transported manually and hand-stacked. Cylinders were rolled by hand, one at a time. The use of Baker Trucks has resulted in savings of thousands of dollars annually.

Write for

your copy of the "Baker Handling Library"
a new portfolio of actual case histories.

Baker

industrial trucks

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

*The Baker-Lull Corporation • Subsidiary, Minneapolis, Minn.
Material Handling and Construction Equipment*

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New HYDRAULIC RAMP makes big savings at your loading docks



Moving Up or Down, the Leva-Dock Ramp keeps on the level with the truck or trailer bed. It compensates 4 ways for varying truck bed heights, out-of-level trucks, and truck spring deflection during loading and unloading.

Faster Handling • Less Breakage • Prevents Accidents

The Leva-Dock Ramp is a hinged platform positioned by a hydraulic jack. It fits into your loading dock as shown above. Four steel sections rest on truck or trailer bed and travel up or down as loading or unloading progresses.

The new Leva-Dock Ramp makes it possible to handle heavy loads in and out of trucks and trailers without using steel plates, bridge ramps or slow and expensive methods. The platform will support 20,000 lb. loads rolled backward

and forward, or from side to side. It becomes part of the loading dock floor when not in use. A new automatic safety device prevents accidents and costly, time consuming delays.

This rugged, self-contained unit has its electric power system and oil reservoir mounted right in the torque-tube frame. Installation is simple—operator is very inexpensive. Dependability is assured by Rotary's experience in building over 75,000 elevating devices.

For complete data, write

Rotary Lift Co., 1046 Kentucky, Memphis 2, Tenn.



LEVA-DOCK® RAMP

Rotary also makes: Levelator Lifts—Oildraulic Transfer Bridges—Freight, Sidewalk and Passenger Elevators—Automotive Lifts.

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news from the
SALES FIELD

The Christy Equipment Co., with headquarters in Omaha, Neb., has been appointed by Clark Equipment Co. as a new dealer for Clark's fork lift trucks, powered hand trucks and towing tractors. **G. K. Christy** Heading the new dealership are **Gordon K. Christy** and **Charles O. Christy**. Gordon Christy has been a Clark salesman for the past eight years. The Omaha dealership will replace the Clark dealership in Sioux Falls, S. D., and will cover all of South Dakota and large portions of Nebraska, Iowa and Minnesota.



The appointment of **A. A. Moore** as regional distributor of fork lift trucks and materials carriers manufactured by **Gerlinger Carrier Co.** was made recently. The distributorship covers the greater New York industrial area. Moore has been active in the material handling equipment field since 1926 when he sold the first fork lift truck ever used on the New York docks.

Richard E. Mayberry, vice president and sales manager of **Wright-Hibbard Industrial Electric Truck Co.**, has announced the appointment of four new distributor organizations to handle the Wright-Hibbard line throughout the east and midwest. They include the **R. E. Condit Co.** in Colum-



If you want "Thru-the-Air" handling at its low-cost best, you can't beat this — a *genuine* P&H Zip-Lift Electric Hoist with rope control . . . only \$199.50.

This new "Zip" is built to give you years of trouble-free service — *guaranteed* to withstand an occasional overload up to 25% more than the rated capacity. Other important advantages include real wire rope hoisting for wider side pull, double brakes for double safety, and easy installation (just hang it up and plug it in).

Yes, here's the number-one buy in the low-cost

handle it

"THRU THE AIR"
with



hoist field — the new Zip-Lift ready to save time and money for you. Check the many ways "Thru-the-Air" handling can cut your *costs*. Ask your nearby P&H Dealer to give your plant the once-over. His advice will cost you nothing — and he will save you money. Call him today!

Also available with full-magnetic
push button control



ELECTRIC HOIST DIVISION

**HARNISCHFEGER
CORPORATION**
MILWAUKEE 46, WISCONSIN

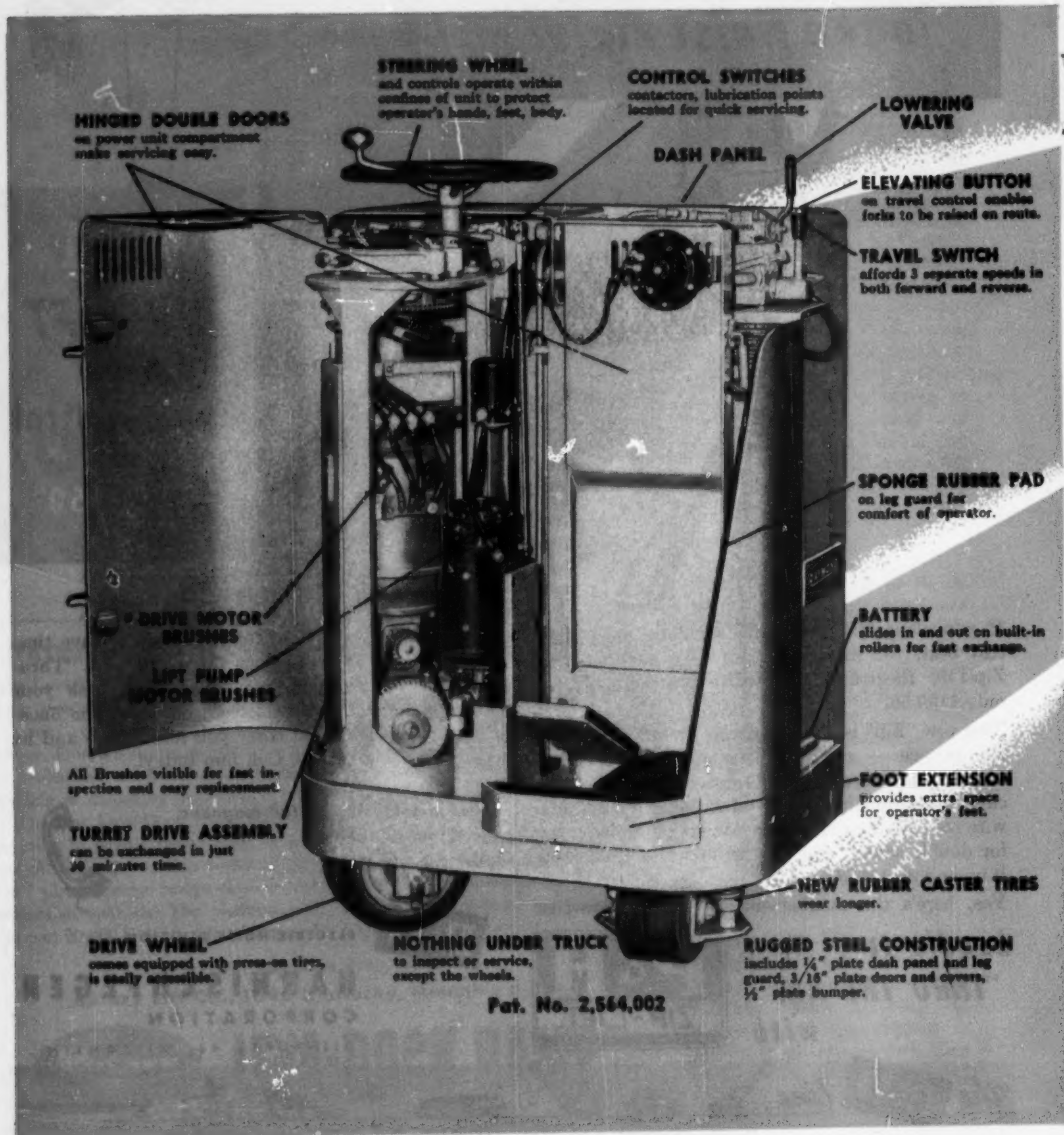


Circle No. 71 on Reader Service Card for more information

NEW POWER UNIT

RAYMOND

Opens up like a book...





**ANOTHER
RAYMOND
FIRST!**

**Now furnished on all
RAYMOND ELECTRIC TRUCKS**

for fast, easy servicing

It's here...

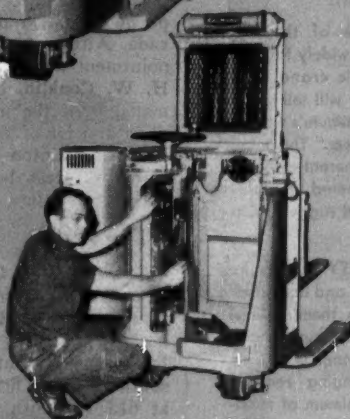
**the day you can service an electric truck
as easily as you'd open a book. Because
all parts on this new Raymond Power Unit
are housed behind hinged double doors.**

**There's nothing under the unit to inspect
or service, except the wheels.**

This great unit now is furnished on all Raymond Electric Trucks. No other truck offers you a power unit like it! It's the same time-tested power unit that made 6' aisles possible—developed and used by Raymond for the past 4 years. Only the working mechanism has been re-arranged for even greater ease in maintenance, plus rider comfort.

The Raymond Power Unit gives you maximum operation with a minimum of downtime. It's designed for speedy servicing—the complete turret drive assembly, for example, can be exchanged in just 30 minutes. What a timesaver for your service department!

This unit provides more space for the operator than any other truck of its type. All controls operate within the confines of the unit—are conveniently grouped for ease of use. At no time do any parts of the operator's body extend beyond the unit. It's ruggedly constructed too—with heavy gauge plate steel throughout frame for long life and lasting appearance.



SEND FOR BULLETIN Get the facts on the new Raymond Power Unit before you buy your next industrial truck. Mail this coupon today!



**ELECTRIC INDUSTRIAL TRUCKS
HYDRAULIC ELEVATING EQUIPMENT**

The RAYMOND CORPORATION

3319 Madison St., Greene, N.Y.

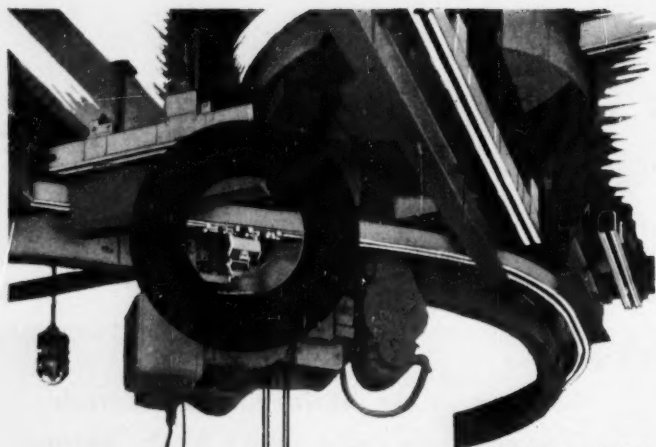
Please send me bulletin describing your new Power Unit.

Name Title

Company

Street

City State



ELECTRIC FEEDRAIL

Reliability

**will keep your
cranes and hoists rolling!**

FEEDRAIL standardized units make it easy to power crane or hoist runs—including curves, slide switches, transfers, turntables and spurs. Feedrail's free-running trolleys roll as one with cranes and hoists.

SOLD BY OVER 1,000
ELECTRICAL DISTRIBUTORS
COAST TO COAST



RELIABILITY is one of the big reasons Feedrail is so widely favored for powering electric cranes and hoists. User after user will tell you—"We've never had a minute's trouble with our Feedrail system." That's because Reliability is inherent in Feedrail's expertly-engineered, trouble-eliminating design and rugged high-precision construction.

FEEDRAIL RELIABILITY is your insurance against crane and hoist stoppages . . . it keeps them rolling! What's more, Feedrail assures maximum safety to personnel . . . easy adaptability to changing requirements . . . a very minimum of maintenance. And, its prefabricated units are so simple to install!

GET THE FULL DETAILS

Write today for descriptive bulletin. Direct your request to Feedrail Corp., Department F-9.



53-3



Never Becomes Obsolete

FEEDRAIL CORPORATION

Subsidiary of Russell & Stoll Company, Inc.

125 BARCLAY STREET • NEW YORK 7, N.Y.

SPECIALLY QUALIFIED REPRESENTATIVES IN PRINCIPAL CITIES

Circle No. 55 on Reader Service Card for more information

SALES FIELD

Continued

bus, Ohio; **Machine Tool Sales** in Chicago; **Nook & O'Neill Inc.** in Cleveland, and **Stokes Equipment Co.** in Philadelphia.

General Electric Co. has appointed its first agent and distributor in Alaska. **The Northern Commercial Co.** will handle GE motors, controls, rectifiers and other apparatus products in Juneau, Ketchikan, Anchorage, Fairbanks and Nome. **Volney Richmond Jr.** is president and general manager of the firm which dates back as far as 1791 when the company gained permission of Russia to hunt seal in the territory.

The Material Handling Engineers of Salt Lake City have been appointed representatives for the sale and service of Yale Industrial Trucks in Utah and portions of Wyoming and Nevada. Announcement of appointment was made by **James H. W. Conklin**, general sales manager of the material handling division of **Yale & Towne Mfg. Co.** **Clinton P. Mott** and **Ralph B. Rees** head the Salt Lake City firm.

The Fab-Weld Corp. has announced the appointment of the **Radph W. Payne Co.** in Washington, D. C., as its regional Railroad representative in the southeast. The firm is located at 613 Fifteenth St. NW, in the capitol city.

Headquarters of the **L. J. Lutz Co.**, Los Angeles representatives for **Automatic Transportation Co.**, have been moved from Los Angeles to Huntington Park, Calif. The recent announcement states that the distributor's new address is 7962 Salt Lake Ave.

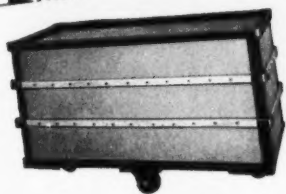
(Continued on page 118)

FLOW • SEPTEMBER, 1953



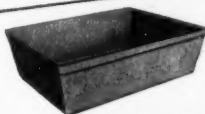
*Your Materials Handling can be made
as efficient as your production*

with **KENNETT**
**Materials Handling
Equipment**



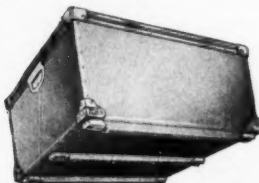
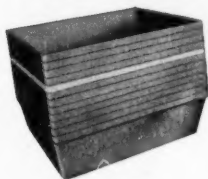
TRUCKS FOR EVERY PURPOSE

Made to order any size. Available in hard vulcanized fibre, resin bonded plywood veneered with hard vulcanized fibre, or from steel veneered to both sides of water proof core.



TRAYS FOR EVERY PURPOSE

Light, strong, inexpensive "Fiberglass" reinforced plastic trays (various colors)—for stacking or handling. Also, trays made from hard vulcanized fibre in any type and size.



TOTE BOXES FOR EVERY PURPOSE

Available in any type and size to your specifications. Made from hard vulcanized fibre or "steel-kid" fibre. Weight reduced to minimum without loss of strength.

We can make this statement because for over 30 years our exclusive job has been the design and construction of specialized handling equipment to do certain things under certain conditions—efficiently—economically!

If your handling equipment is obsolete or inadequate at any point, you're facing needless labor costs. By analyzing such problems you can enjoy extra savings—increased profits.

Our engineers, skilled in materials handling problems, located in principal cities, are available to study your particular situation and to make recommendations for the right equipment, designed and built for the specific purpose.

If you have a materials handling problem, let us hear from you. Use the coupon below for quick action.

FIBRE SPECIALTY MANUFACTURING COMPANY

(Div. National Vulcanized Fibre Co.)

P.O. Box 311

Wilmington, Delaware

Fibre Specialty Company
(Div. of National Vulcanized Fibre Co.)
P.O. Box 311, Wilmington, Delaware

We are interested in reducing handling costs

☐ Have your representative call

☐ Send your complete Catalog

Firm Name _____

Address _____

by _____

THE HIDDEN COST OF MATERIALS HANDLING CAN BE THE DIFFERENCE BETWEEN PROFIT AND LOSS

Circle No. 57 on Reader Service Card for more information

NEWS VIEWS TRENDS

AUTOMATIC PRODUCES 30,000th TRANSPORTER

Completion of its 30,000th Transporter operator-led electric industrial truck was announced recently by Automatic Transportation Company. The 30,000th unit rolled off the production lines 11 years after the first Transporter was turned out by Automatic. John A. Baldinger, general manager, estimated that since 1942, Transporters have saved industry more than \$200,000,000. And, one of the first units has been in continuous operation in Automatic's own plant since 1942, during which time it has traveled an estimated 50,000 miles.

EDISON PLANS EXPANSION

Plans for plant expansion and increased production of batteries have been announced by George E. Stringfellow, senior vice president of Thomas A. Edison, Inc., and general manager of the Edison Storage Battery Division. Expansion plans call for a 40-percent increase in battery production capacity at the West Orange, N. J., plant at an estimated cost of \$6,000,000. The use of storage batteries for powering industrial trucks will increase 60 to 100 percent during the next 10 years, it was predicted by Wallace M. Schleicher, general sales manager of the Edison Storage Battery Division.

CONTAINER LABORATORIES HAS NEW ADDRESS

Container Laboratories, Inc., has announced the opening of an engineering office at 1519 Connecticut Avenue, N.W., Washington, D.C. This office was formerly located on Eye Street in Washington. It will be under the supervision of Thomas P. Wharton, and is presently engaged entirely on government projects. However, commercial and industrial firms interested in package engineering and research in the territory adjacent to Washington may also address this office.

H. K. PORTER ACQUIRES CONTROL OF LESCHEN

H. K. Porter Company, Inc., has acquired a controlling interest in A. Leschen & Sons Rope Company, according to T. M. Evans, Porter's president. The Leschen Company, established in 1857, is one of the country's oldest producers of wire rope. Operations will continue as Leschen Wire Rope Company, a Division of H. K. Porter Company, Inc., under the direction of D. W. Vernon, vice president and general manager. A. A. Leschen, former president, has expressed a desire to retire from active business.

NYU OFFERS PACKING COURSE

Current packing problems and present-day military packing techniques are among the subjects to be studied in "Packing and Packaging: Design Techniques and Cost Reduction Studies," a course to be offered in the fall term by New York University's Division of General Education. Allyn C. Beardsell and Alfred W. Hoffman, vice president and technical director, respectively, of Container Laboratories, Inc., are the instructors for the class meeting from 6:15 to 8 p.m. on Tuesdays, September 22 to January 19, at NYU's Washington Square Center.



EVERY YEAR
 more and more
 people order
 more and more
MONARCHS
 for Replacements*

* Every year, Monarch increases its manufacturing facilities for production of solid industrial tires. In 10 years, those facilities have been expanded 518% to keep up with the demand for solid tires. Since Monarch specializes in solid tires exclusively, you will find most lift truck manufacturers demonstrate their confidence in our experience by equipping their trucks with Monarch Solid Industrial Tires.

When you need new tires for your truck, call in your Lift Truck Dealer. He knows trucks best and he knows the type Monarch tire best suited for your operation.

Monarch Efficiency Tires
 for Electric Trucks. Monarch General Purpose
 for Gas Trucks or where
 extremely severe conditions call
 for a tough tire.



THE
MONARCH

RUBBER COMPANY

550 LINCOLN PARK • HARTVILLE, OHIO
 7-255 GENERAL MOTORS BLDG., DETROIT 2, MICH.

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS

NEWS, VIEWS, TRENDS

Continued

SISALKRAFT OPENS NEW PLANT

An open house for city officials and business and professional people of Tracy, Calif., signaled the start of operations at Sisalkraft Company's new plant in that community. The new plant supplements the main mill at Attleboro, Mass., and all production at Tracy will serve the company's West Coast markets.

ISSUE PATENT ON NEW BELT

A patent covering a new conveyor belt designed to carry hot materials has been issued to B. F. Goodrich Company by the U. S. Patent Office. Feature of the new construction is a nylon cord breaker embedded in the thick rubber cover of the belt to resist heat damage and extend the service life of the cover. The nylon cords reinforce the rubber cover, and are said to resist formation of transverse cover cracks caused by heat and prevent the penetration of such cracks to the carcass.

AMA ANNOUNCES FALL SEMINARS

More than 2000 business executives from all parts of the country are expected to participate in the 20-week fall program of management seminars announced by the American Management Association. The association will sponsor some 130 educational seminars dealing with 86 specific management problems. Most of the meetings will be held at AMA's Management Center in New York, others will be at the Palmer House in Chicago and at the Hotel Statler in Detroit.

FREIGHT CAR LOADING SEMINAR

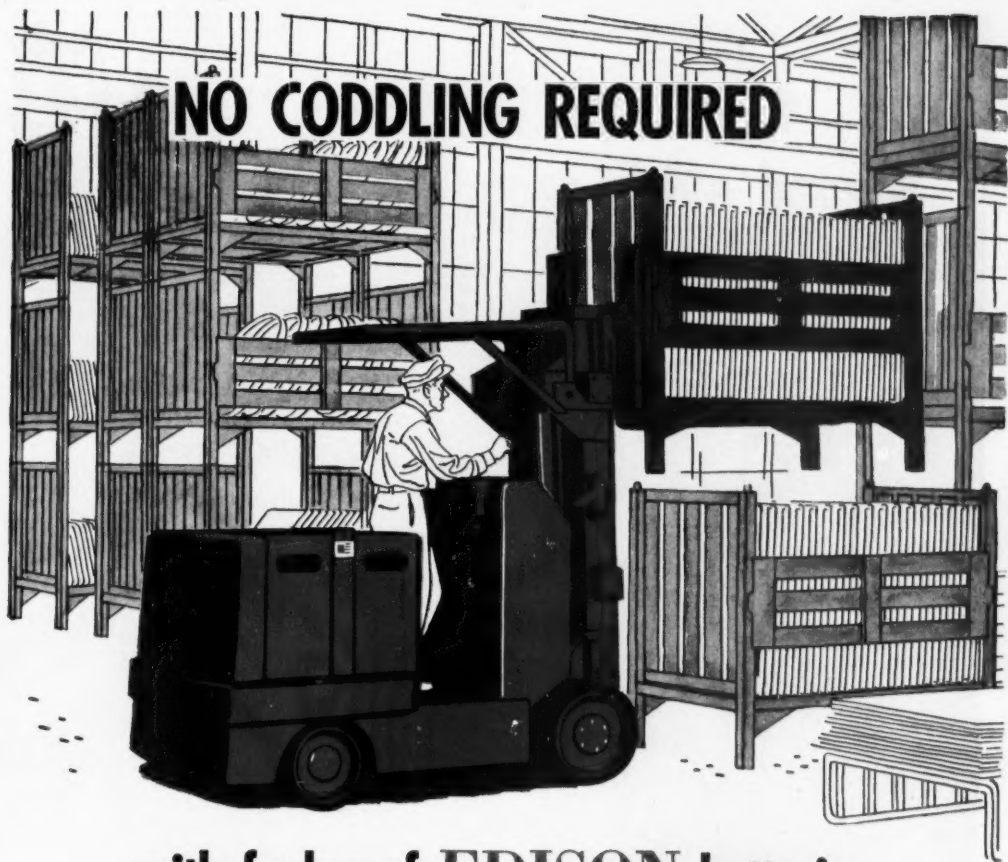
Key carloading personnel from military activities in the Hampton Roads area attended the first freight car loading seminar conducted recently at the Norfolk Naval Supply Center by the Navy's Bureau of Supplies and Accounts. It was designed to give up-to-date training on loading and bracing techniques for material being handled on railroad freight cars. Such problems as loading cylindrical type containers, bags and cable reels in closed cars were discussed, as well as the preparation and loading of explosives and dangerous commodities.

R-M MOVES TO NEW OFFICES

Raybestos-Manhattan, Inc., has moved from 445 Lake Shore Drive into its newly constructed Chicago office and warehouse building at 6010 Northwest Highway. This building provides expanded facilities for warehousing mechanical rubber, packings and asbestos textiles and for Chicago sales offices of these products.

M-H EQUIPMENT GETS SPOTLIGHT AT SOFT DRINK EXPO

Material handling machinery and equipment of many types will be assigned feature spots at the 1953 International Soft Drink Industry Exposition to be held at the Chicago International Amphitheatre, November 9-12. With rising costs particularly noticeable in an industry where margins are reckoned in fractions of a cent per bottle, increasing attention is being paid to the opportunities to save labor costs through further streamlined handling methods.



with foolproof EDISON batteries

Long, trouble-free battery life, without *babying*, is a matter of record at the eastern plant of a large stove manufacturer. Truck-operation reports show no failure attributable to the EDISON batteries that power them.

A 24-hour accidental overcharge—obviously contrary to recommended practice—did not harm one of the batteries. After being watered to the proper level, it was in perfect condition, ready to go to work. Regular maintenance in this plant is simple—consists merely of proper watering, charging, occasional cleaning.

Fast boost-charges provide additional power. When temporary increase in plant production required maximum truck operations during two shifts, boost-charges during lunch hour pro-

vided the extra power needed until more batteries could be put in service.

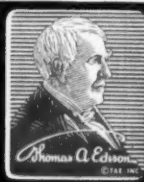
For all 'round service—foolproof operation, dependable power, longer life, lower maintenance cost, less downtime—you can't beat an EDISON. Made of steel, it out-works, out-lasts other types of batteries. You can get the same kind of service on *your* job, by calling your Edison field engineer. He'll gladly give you complete information. Or send for Bulletins S.B. 2039 and S.B. 3808. Edison Storage Battery Division of Thomas A. Edison Incorporated, West Orange, N.J.



Most Dependable Power—

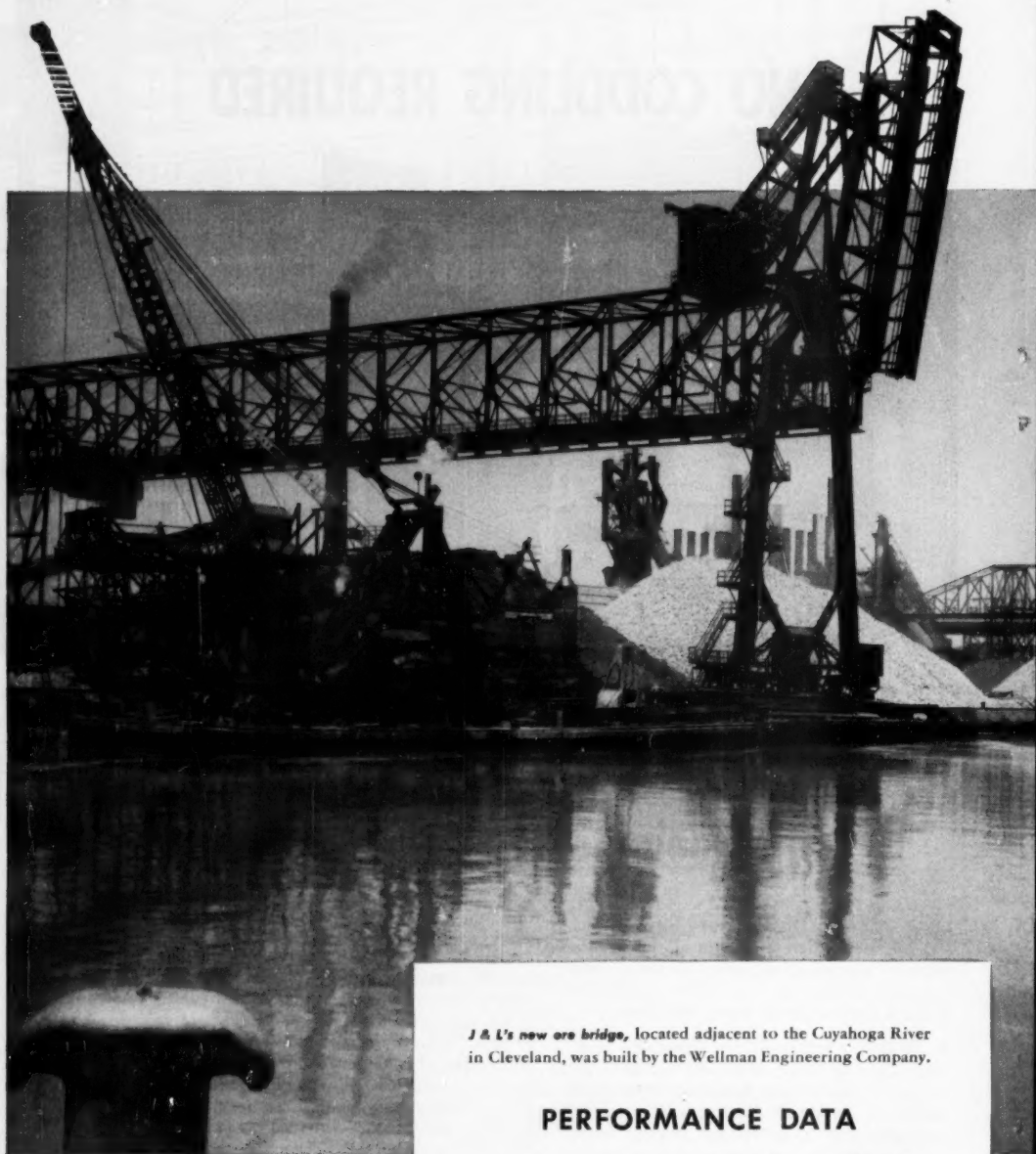
Lowest Over-All Cost

... you get both with an EDISON



EDISON
Nickel · Iron · Alkaline
STORAGE BATTERIES

Circle No. 47 on Reader Service Card for more information



J & L's new ore bridge, located adjacent to the Cuyahoga River in Cleveland, was built by the Wellman Engineering Company.

PERFORMANCE DATA

	Guaranteed	Secured
Hoist Speed	260 fpm	280 fpm
Lower Speed	286 fpm	314 fpm
Trolley Speed	1200 fpm	1290 fpm
Average Trolley Acceleration Rate	3.0 ft/sec ²	3.02 ft/sec ²
Cycle Time	58.6 sec	57 sec
Unloading Capacity	1040 tons/hr	1070 tons/hr

Westinghouse drive boosts ore bridge performance

This 573-foot giant at the Otis (Cleveland) Works of Jones & Laughlin unloads ore from Great Lakes carriers at a 1040-ton-per-hour rate. The control system and drive, designed and built by Westinghouse, have integrated the bridge's complex electrical system. In addition, they offer power savings and low maintenance.

Smooth-sailing bucket

Westinghouse applied a new adjustable-voltage drive which gives the operator smoother, more precise control of the 17-ton capacity bucket. A special load-regulating system governs the distribution of load between the "hold" and "close" drives, and controls the bucket under all operating conditions.

Trolley with pickup

The drive provides fast acceleration for the trolley and reduces peak stresses on the mechanical parts and structural members. It assures economical operation by practically eliminating acceleration power losses. In addition, it lessens bridge maintenance costs and permits trolley construction of lighter weight, a saving reflected throughout the entire bridge.

No speeding allowed

Thanks to automatic, interlocked controls, the operator's job is relatively simple. In an emergency, he can remove power from all driving motors and set the brakes by touching the "stop" button. Trolley travel protection is provided by limit switches which enforce two speed check points at each end of travel. If the trolley exceeds its prescribed speed when it passes either of these check points, it's automatically slowed down.

Next time, call Westinghouse

Co-operation between J & L, Wellman and Westinghouse engineers produced a drive characterized by smooth, rapid acceleration and excellent maneuverability. Westinghouse also builds drives for conveyers, cranes, shovels . . . for almost all kinds of materials-handling equipment. If you can use this kind of imaginative engineering, call your nearby Westinghouse office early in the planning stage. Westinghouse Electric Corp., Pittsburgh, Pa. J-21703

YOU CAN BE SURE...IF IT'S
Westinghouse



Circle No. 163 on Reader Service Card for more information



**"... As I see it, the new
Mathews Loadstar Trolley
is just the thing for this job."**

● There is a lot of that kind of talk these days about this rugged newcomer to the 4" trolley conveyor field. Over a period of five years Mathews engineers have developed this new top-quality precision wheel, the No. 4207 Loadstar, for those conveying jobs which demand unusual stamina. Your nearby Mathews representative has full information on this high-quality trolley. Have him tell you about it and write today for Bulletin LS-1 announcing and describing it in detail.



MATHEWS CONVEYERS

GENERAL OFFICES Mathews Conveyor Company
ELLWOOD CITY, PENNSYLVANIA

PACIFIC COAST DIVISION . . Mathews Conveyor Company West Coast
SAN CARLOS, CALIFORNIA

CANADIAN DIVISION Mathews Conveyor Company, Ltd.
PORT HOPE, ONTARIO

Engineering Offices or Sales Agencies in Principal American and Canadian Cities

Circle No. 100 on Reader Service Card for more information



... at Gould-National Batteries Inc.

Fred G. Teufel, Cleveland regional sales manager of Gould-National Batteries Inc., died July 6. During his business career he made many friends throughout the industry, and was a well-known specialist in the field.



F. G. Teufel

... at Ainsworth Mfg. Corp.

The appointment of R. B. Attridge as head of the manufacturing engineering division was announced recently by F. J. Komerska, plant manager. Attridge brings to Ainsworth a broad engineering experience, having been with the Budd Co. for 15 years and prior to that with Lustron Corp.



R. B. Attridge

... at Hyster Co.

The election of Philip S. Hill to vice president in charge of all sales has been announced by Ernest G. Swigert, company president. He has been general sales manager for the past several years and has been with the company for more than 20 years.

... at Evans Products Co.

William H. Coleman has been named to the board of

POWERFUL TRACTOR

WITH

4-WHEEL-DRIVE



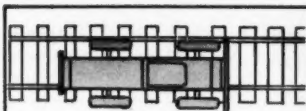
*switch and spot cars
.... push or pull any load*

Here is an unusual combination of mobility, power, traction and precise control to speed the moving and spotting of cars in plants, yards, terminals and docks . . . and to provide tremendous drawbar effort for many other jobs.

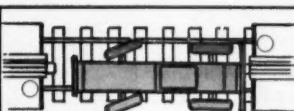
This Model TM "PAYLOADER" tractor has reliable traction on all kinds of surfaces — thanks to its all-wheel-drive and big pneumatic tires. It has a torque converter coupled to a full-reversing transmission with four speed ranges both forward and reverse. With this extremely flexible drive arrangement, the tractor works equally well in either direction . . . has powerful load-starting

ability . . . assures precise load-spotting control . . . provides any desired speed selection from a "crawl" up to 24 mph. Additional ease of control and maneuvering speed are assured by the power-boosted steering.

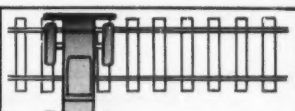
The Model TM is available with gasoline or diesel power — develops up to 16,000 lbs. drawbar pull with gasoline and 14,000 lbs. with diesel power. You are invited to get complete facts on this able, mobile prime mover and the name of your "PAYLOADER" Distributor. The Frank G. Hough Co., 945 Sunnyside Ave., Libertyville, Ill.



Big tires work on ties, ballast, pavement or ground.



Needs only small space to maneuver between cars.



Walks across tracks to reach the next "move" quickly.



PAYLOADER®

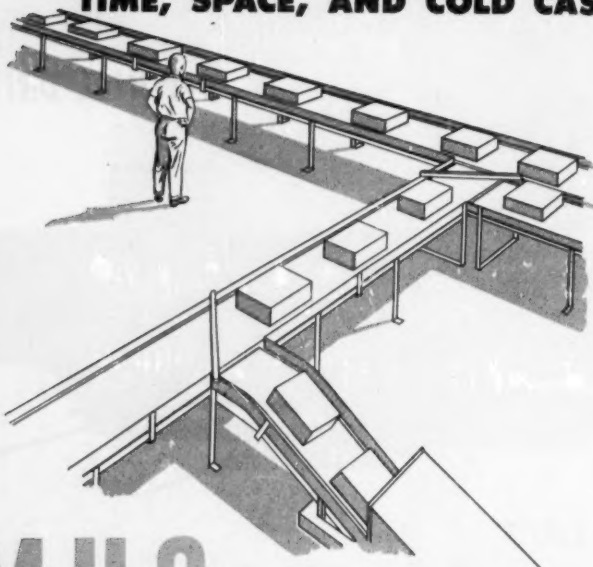
THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.



Circle No. 73 on Reader Service Card for more information

YOU SAVE...

TIME, SPACE, AND COLD CASH



MHS belt conveyors

... MONEY SAVERS EVERY FOOT OF THE WAY!

To move goods in a swift flowing, constant stream... to move them on the level, or up, or down... to carry them ten feet or two hundred... take a look at MHS Belt Conveyors.

Here are standard conveyors, ready to ship quickly from stock, that live up to operating and performance standards you expect from custom construction.

MHS Belt Conveyors are realistically priced. They're economical in operation and maintenance. They make labor more productive by ending the waste of much manual handling. Your MHS Belt Conveyors pay off in a short time.

Check your plant for a chance to use MHS belt conveyors!

**Complete money-saving
information in this FREE book -
Write for it TODAY!**



Mechanical Handling Systems Inc.



4620 Nancy Ave., Detroit 12, Mich.

Offices in Principal Cities

In Canada: Canadian Mechanical Handling Systems Ltd., Toronto

Circle No. 102 on Reader Service Card for more information

MEN IN THE NEWS

Continued

directors, according to E. S. Evans, Jr., company president. Coleman also is president and founder of the Coleman-Patterson Corp. and is a director in numerous other industrial concerns in Cleveland and Los Angeles.

... at Heppenstall Co.

The promotion of Howard G. Grim to general manager of operations and Paul H. Daley to assistant general manager of operations has been announced by R. B. Heppenstall, company president. Grim joined the company in 1929 and most recently held the post of works manager. Daley joined the firm as an industrial engineer in 1946 and became general superintendent in 1950.



H. G. Grim

... at Acme Steel Co.

The appointment of F. Richard Meyer III as assistant to the president has been announced by Fred M. Gillies, president. Meyer replaces Christopher D. Norton, who was elected vice president of Acme International Co. and Acme Overseas Co., both subsidiaries.

... at Yale & Towne Mfg. Co.

The appointments of Newcombe C. Baker as advertising manager and Carleton P. Adams as sales promotion and publicity manager of Yale's material handling division have been announced by Elmer F. Twyman, vice president. Baker formerly served as manager of special sales promotion, and Adams as advertising manager of the division.

(Continued on page 161)

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

Increases protection, and speeds packaging rate 100%



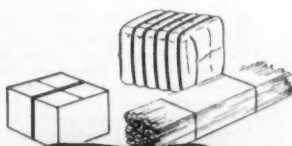
SUCCESSFUL SOLUTION to a difficult packing problem proved to be Acme Steel Strapping, here at the Orangeburg Mfg. Co., Orangeburg, N. Y.

Outstanding feature of sewer pipe made by Orangeburg Mfg. Co. is the material it's made of: fibers, impregnated with coal-tar pitch — non-corrosive, watertight, acid-resistant—but tricky to package.

Three different methods of binding the pipes together were tried without success. The materials either did an unsatisfactory job or proved to be too expensive.

But Acme Steel Strapping did it, doubled the packing rate, doubled the number of pipes per package. It was easy, fast, economical. And it insured Safe Arrival.

This is a typical example of how Acme Steel Strapping helped one manufacturer. Very likely it can help you. Maybe it can solve problems you scarcely know you have—but which cost you money just the same. Write to Acme Steel Products Division, Dept. F93.



**ACME
STEEL**

Acme Steel Products Division **ACME STEEL COMPANY** 2840 Archer Avenue, Chicago 8, Ill.

Circle No. 2 on Reader Service Card for more information

ROURA^{Self-Dumping} HOPPERS

*Imitated by Many—
Not Equaled by Any*



SIMPLE • SAFE • SPEEDY
Material Handling

Use Self-Dumping Containers

Step Up **PRODUCTION**

Reduce **FATIGUE**

Only ROURA Has The Exclusive
PATENTED Instant Release Handle



SAVE 50% LABOR-TIME

Handling wet or dry, hot or cold, bulky materials quickly and easily, the ROURA is simple to operate—only one man is required for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Owens-Illinois Glass, Corning Glass, National Fireproofing, General Motors, Ford, Chrysler, American Brake Shoe, General Electric, Westinghouse, Western Electric, American Steel Foundries, International Harvester, John Deere, etc.

By a simple lift of the exclusive release handle, the ROURA HOPPER dumps, rights and locks itself securely. Sizes— $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

—Can Be Coated With Acid-Resistant Paints

Write today for detailed brochure, "In Dollars & Sense."

ROURA IRON WORKS, Inc.

1411 Woodland Ave.

Detroit 11, Mich.

Circle No. 134 on Reader Service Card for more information
30

Highlights

of the month's news

WE ARE PLEASED to announce that Mr. Russell F. Oakes, for many years advertising and sales promotion manager of the Industrial Truck Division of Clark Equipment Company, has joined FLOW as its general manager.



Russell F. Oakes

Mr. Oakes is widely known throughout the material handling industry. Because of his keen interest in all phases of material handling, he has been one of the country's leading proponents of integrated handling systems. As a colonel in the Transportation Corps of the United States Army at the close of the war, he was active in warehousing and the operation of Army depots, as well as transportation of supplies.

Mr. Oakes was very active in the formation of the Material Handling Institute. Also, he received the only award ever made by the National Material Handling Exposition, when his Clark exhibit won first prize.

FLOW is extremely fortunate in having Mr. Oakes as general manager. Because of his broad experience, and his vast knowledge of the material handling field, we will now be able to carry out effectively the many programs that have been planned for the future.

• • •

FLOW has really rolled up its sleeves and gone to work for next month's issue. As you know, the 8th Annual National Industrial Packaging and Materials Handling Exposition will be held in Boston October 20 to 22. In connection with the exposition, we're coming up with more than "just another show issue".

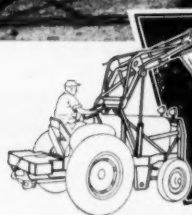
For some time now, we have featured a special, separate section devoted entirely to packaging and shipping problems. This section, we've discovered, gives more editorial attention to packaging and shipping problems than any other "non-packaging" magazine. And, naturally, we feel that next month's issue is going to be even more "extra-special".

What's it going to be? Well, let's just say it'll be a unique approach to the complete packaging and shipping picture. Watch for it—our October issue.

FLOW • SEPTEMBER, 1953



Shovel loader gives you
more efficient
BULK MATERIAL HANDLING
for only \$2332



Prices for $\frac{3}{4}$ yard
Shovel loader start at \$2332
(f.o.b. factory) for complete
unit including tractor.

This versatile low-cost handling and maintenance tool does so many things so efficiently that practically every industrial plant will find it a profitable investment.

- If you handle bulk material such as dry chemicals, sand, limestone, coal, etc., the Lull Shovel loader will save money for you from the day it is installed.
- It will charge hoppers, load trucks, keep stockpiles orderly.
- It will carry coal from yard storage to power station and haul away ashes.
- It can handle heavy loads of loose castings, forgings or other parts in yard or plant.
- If you require grading, landscaping, backfilling or yard clean-up work, the Shovel loader will do that, too.
- It will be a godsend next winter when your storage yard, parking lot, driveways and sidewalks must be cleaned after a heavy snowfall.

The Lull Shovel loader will out-perform similar units that cost much more. Features include greater forward reach, higher lift, power down-crowd, full hydraulic control of bucket, sturdy bridge type construction. Bulldozers, cranes, snow-buckets, forks or sweeper attachments are easily added.

Write for

Bulletin AD-32-B or contact your Lull distributor for complete information.

THE BAKER-LULL CORPORATION

Formerly the Lull Manufacturing Company

346 WEST 90th STREET • MINNEAPOLIS 20, MINN.

A Subsidiary of the Baker-Raulang Co., Cleveland 2, Ohio

Circle No. 16 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953

**Baker
Lull**

handling equipment

Suppose we put the Dempster-Dumpster System right down in your plant . . . then what?



- *Well First—let's make it clear that we are furnishing you with several sizes of different designs of 26 containers to suit your materials requirements. Then bear in mind that we are delivering you only one truck-mounted Dempster-Dumpster and with your driver this one outfit picks-up, hauls and dumps all containers, about like the one shown above.*

Now, how many conventional trucks are you using for handling rubbish, scrap, raw materials, and what have you?

For several years now, one plant has been doing considerably more work with two Dempster-Dumpsters and two men than they did with five trucks and fifteen men before the Dempster-Dumpster System was installed. You can guess at the approximate savings annually.

A glance at the picture below and you get the whole story of the Dempster-Dumpster System. Never before have you been able to cut bulk materials

handling costs so drastically.

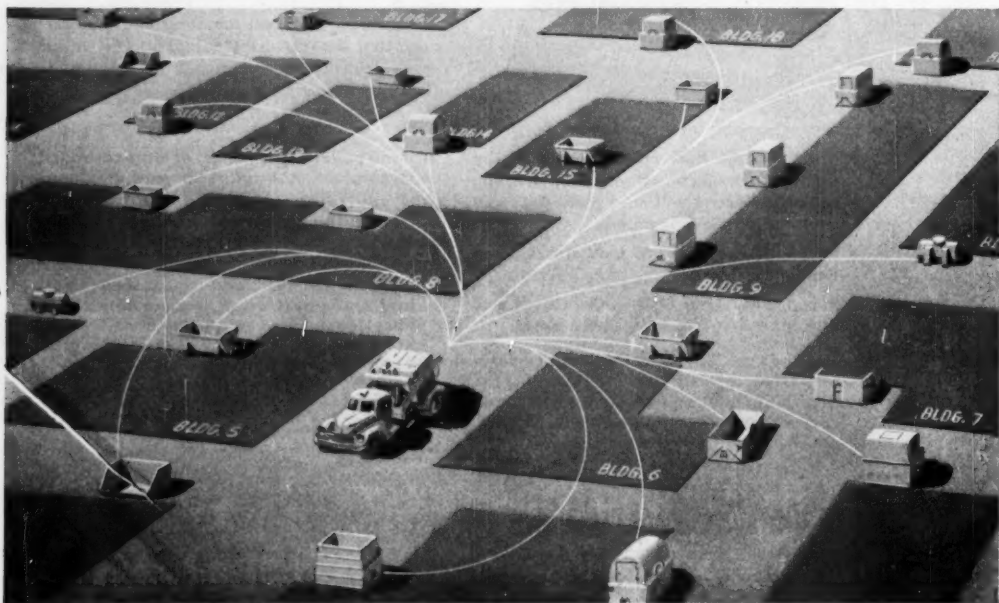
One truck mounted Dempster-Dumpster handles the entire group of 26 Dempster-Dumpster containers. These big, detachable steel containers are like having 26 truck bodies for a single truck.

Any required number of Dempster-Dumpster containers are spotted at convenient materials accumulation points inside and outside your buildings. They range in sizes up to 12 cu. yds.—3 to 4 times the capacity of a regular dump truck. Materials—bulky, light, heavy, solids, rubbish and even liquids—are dumped or placed into these containers.

The truck mounted Dempster-Dumpster makes scheduled rounds, picks up each preloaded container, carries it to the point of disposal, sets it down intact or dumps the materials and returns the container for refilling. The entire operation is hydraulically controlled and handled by your truck driver.

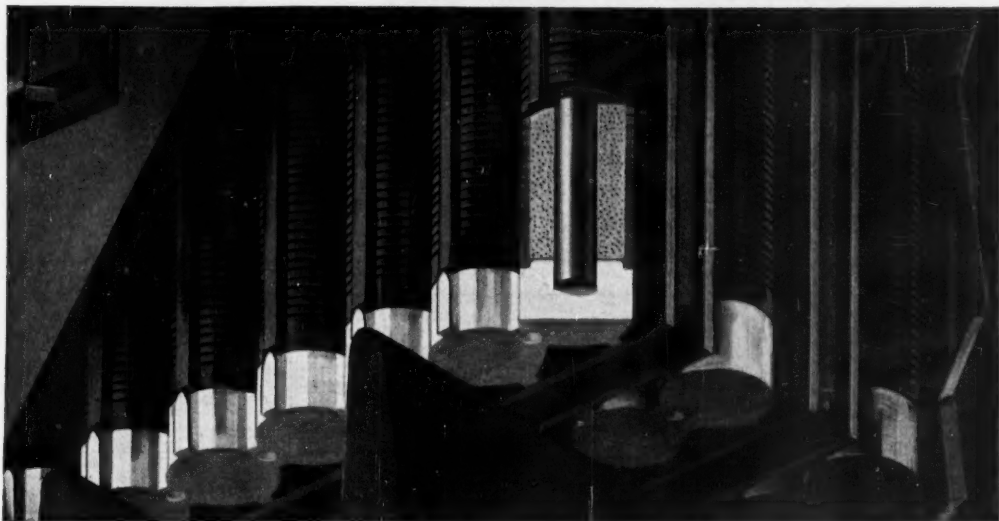
It's as simple as we have described it. The amazing thing is the tremendous savings being made by the Dempster-Dumpster System in hundreds of leading industrial plants over the nation.

A product of Dempster Brothers, Inc.



DEMPSTER BROTHERS, 693 Snea Bldg., Knoxville 17, Tenn.

YOU'LL FIND THE DIFFERENCE INSIDE THE **Exide-Ironclad**



Inside . . . where it counts most . . . EXIDE-IRONCLAD is entirely different than any other battery. It's made that way by EXIDE'S exclusive IRONCLAD slotted-tube construction . . . a principle that provides direct operating-hour savings for you.

OF ALL BATTERIES, ONLY EXIDE-IRONCLADS HAVE POWER TUBE POSITIVES

The positive plate is different . . . unique . . . exclusive. It is the most effective retainer of active material yet demonstrated in heavy duty service. Slotted tubes contain the active material. So fine are the slots that, while permitting easy access of electrolyte, they retard the active material from washing

out, hold it during repeated cycles of charge-discharge, and the vibration of rough use.

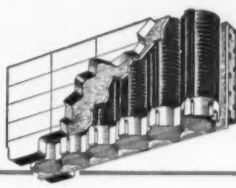
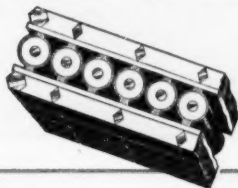
Today's battery-powered equipment is being used harder than ever before. Unless the batteries have internal shock protection they tend to deteriorate under hard usage—both electrical and mechanical. Only Exide-Ironclad has the plus-protection of the tubular positive that can withstand today's more exacting and rigorous heavy-duty battery services.

Your EXIDE sales engineer will give you the factual inside story. See for yourself why *only* an EXIDE-IRONCLAD gives maximum day-after-day service under the most difficult operating conditions . . . *with a minimum of maintenance expense.*

Cross section shows relation of positive plate to separators and negative plate. Note the much greater exposure of active material to electrolyte as compared with that of the usual flat positive plate. This greater exposure makes possible the high power ability and uniform-voltage characteristics of the Exide-Ironclad. The negative plates have been made extra heavy to balance the increased capacity of the power tube positives.

Running through center of each tube is an alloy core which is cast with the heavy top cross bar. These form the sturdy, non-buckling grid. Both core and top bar are made of Exide's new corrosion-resistant Silvium, an alloy of silver, lead and other components, which adds greatly to plate's long life.

New polyethylene insulating tube sealer of acid-proof, non-corroding plastic fits snugly into bottom of slotted tubes and further reduces loss of active material. Thus more active material remains available, and the high battery capacity is maintained for a longer working life.

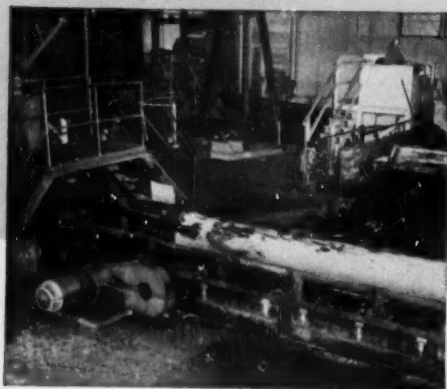
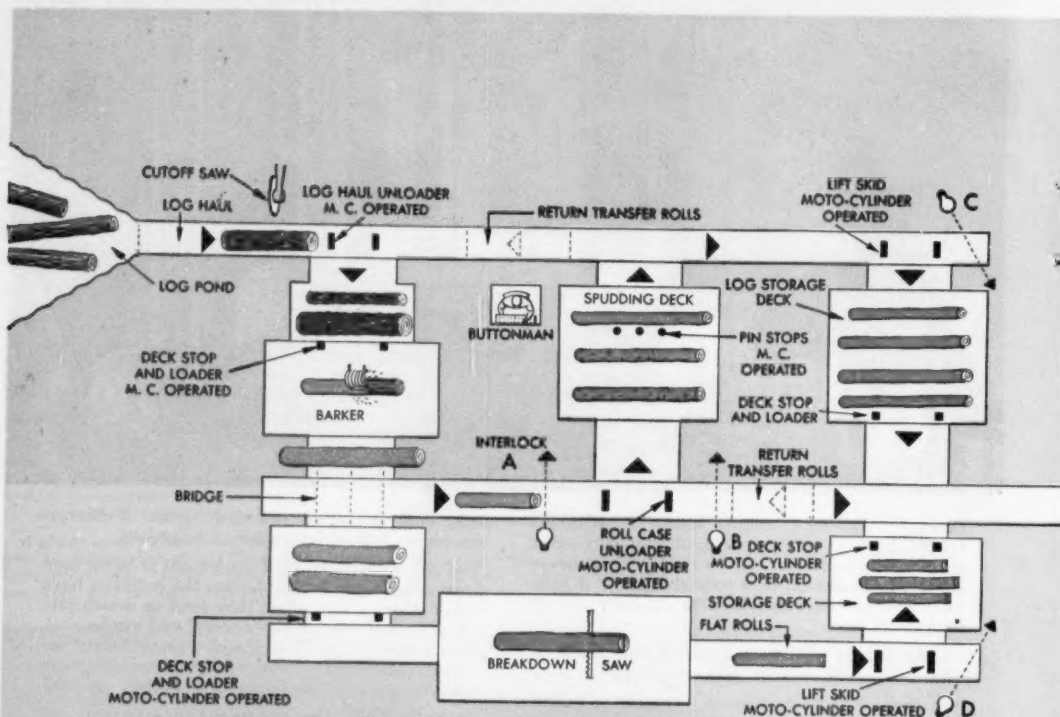


1888 . . . DEPENDABLE BATTERIES FOR 65 YEARS . . . 1953

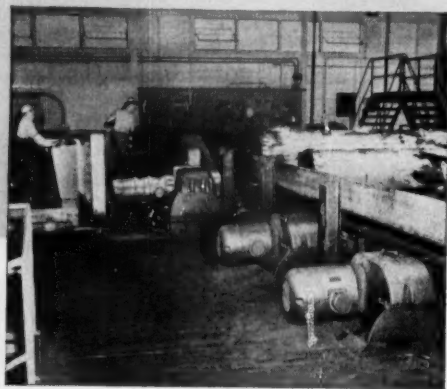
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • *Exide Batteries of Canada, Limited, Toronto*
"EXIDE-IRONCLAD" and "SILVIUM" Reg. T.M. U.S. Pat. Off.

Circle No. 177 on Reader Service Card for more information

How it works: Logs are conveyed up log haul from log pond. Cutoff saw reduces logs to workable lengths. Barker removes bark by water pressure. Small, clean logs go directly to chipper. Large diameter logs go directly to breakdown saw where they're split into smaller sections, and sent on to storage. Partly unbarked or unclean logs go to spudding deck where remaining bark or dirt in crevices is removed; then sent to log storage. Chipper cuts all wood into chips for making pulp.



View of electric eye station with buttonman at right rear. Westinghouse Gearmotors, like the one in the foreground, drive all mill conveyors. You never have to grease them because their bearings are pre-lubricated and sealed at the factory. Think how much maintenance this will save you!



Logs approaching breakdown saw. Westinghouse Gearmotors drive the chain conveyor. Motocylinder, to rear, drives the deck stop and log unloader. Breakdown saw operator sits at control panel to left. Westinghouse Power Center, against wall, meets mill's demand for spacesaving "packaged-power."

Westinghouse materials handling system lets only 5 men control complete mill

If your problem is moving heavy, bulky materials, you may get some good ideas from this Westinghouse log handling system in a north-western wood mill. Thanks to a carefully planned electrical control system, five men—instead of fifteen or twenty—control the complete mill. A typical example of how Westinghouse can devise ways to help you reduce production costs by using man power more efficiently.

Remote control from start to finish

Aided by electric eyes and pushbuttons, one buttonman routes logs to and from each necessary operation. Four other men remotely control each processing step. Electric eyes (A and B) automatically activate Westinghouse Motocylinders which lift logs to the spudding deck; (C) lift clean logs to storage; (D) transfer log sections to storage.

System flexibility allows logs to be returned to any operation

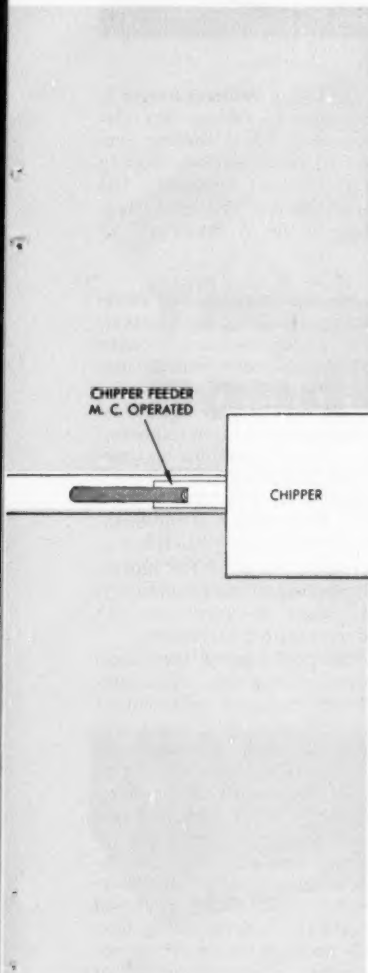
This system is highly flexible because logs can be returned to any operation when necessary. For example, if rebarking is needed, the buttonman can route any log or section back to the barker via the return transfer rolls and the spudding deck.

Ingenious electric eye interlock automatically prevents jam-ups

Suppose a small, clean log is enroute from the barker to the chipper when the unloader arms are raised to flip another log to the spudding deck. In this case, when its beam is interrupted, the electric eye at (A) automatically stops the first conveyor section until the unloader arms return to the down position. This prevents the small, clean log from jamming behind the arms and causing a system tie-up.

Westinghouse can help you reduce production costs

Westinghouse-engineered materials handling systems, like this, are paying for themselves in all types of plants and mills . . . just as they will pay off in your own operation. Call your Westinghouse representative and learn more about how Westinghouse equipment and expert planning assistance can help you cut production costs by using man power more efficiently. Or write: Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania. J-94971



YOU CAN BE SURE...IF IT'S
Westinghouse



GET THIS DESCRIPTIVE CATALOG ON THE
COST-CUTTING, PRODUCTION-BOOSTING
WORK-O-MATIC* SYSTEM



Users report production increases from 22.6 to 52.8%

Likewise, in a typical scrap handling operation, the cost of loading a carload of scrap was reduced from \$138.55 to \$6.83. Ask for Catalog No. 83. Write to The Union Metal Manufacturing Co., Canton 5, Ohio.

*Patent No. 2,445,038. Other patents pending.

UNION METAL

Material Handling Equipment

RUSH CATALOG 83

FOR
YOUR
CONVENIENCE



YOUR
NAME _____

COMPANY
NAME _____

ADDRESS _____

CITY _____ STATE _____

Circle No. 155 on Reader Service Card for more information

**association
and society
NEWS**

● On Oct. 6 William Pearce is scheduled to address the Detroit Materials Handling Section of the American Society of Mechanical Engineers. His topic will be "Material Handling in the Warehouse."

● Business sessions and recreation were combined successfully at the National Wooden Box Association's annual summer meeting held recently at White Sulphur Springs, West Virginia. In addition to numerous group discussions on timely industry topics, the members heard their association president, R. F. Miles, of the Rathbone, Hair & Ridgway Box Co., speak on the need for aggressive selling within the industry.

● H. C. Davis, of the Bemis Brothers Bag Co., was unanimously reelected president of the Industrial Bag and Cover Association at its third annual convention held recently at Lake Tahoe, Calif. Stanley Yount, of the Southland Paper Converting Co., also was reelected vice president. The association currently is sponsoring a competition for its annual award for "a form-fitting, flexible package for an article not presently packaged in bag or cover form." Prizes of \$500, \$250 and \$100 will be presented winners semi-annual meeting in Chicago next November.

● New Officers have been elected by the Michigan chapter of the Society of Industrial Packaging and Material Handling Engineers. Darrel A. Buhlman, Lincoln-Mercury



Thermoid can cut your handling cost per ton

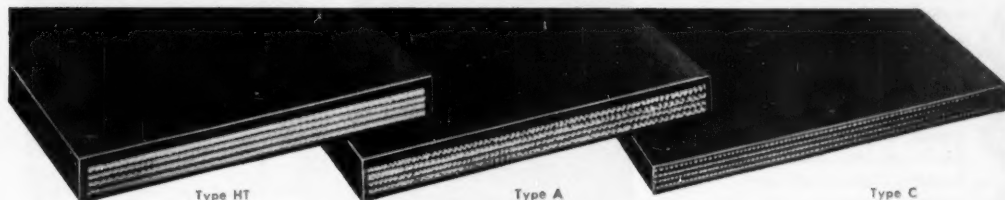
Regardless of the weight, abrasive action or temperature of the materials you handle, there's a Thermoid Conveyor Belt that will stay on the job longer, reducing your handling cost per ton.

Thermoid Conveyor Belting for mining, quarrying or heavy construction work is designed for maximum service in these specific uses. Strong cotton fabrics, thoroughly impreg-

nated with high test rubber friction, are combined with tough, wear-resistant rubber covers. Welded together under extremely high pressures to assure exceptionally strong, durable belting.

Your Thermoid Distributor can help you select the belt best suited to your needs. If your problem is unusual, he'll call an experienced Thermoid Sales Engineer.

Thermoid Belting specifically designed for mine, quarry and construction work:



Type HT
For highly abrasive granite, flint rock, quartz ore, etc.

Type A
For slag, lime rock, crushed stone and hot material.

Type C
For sand, gravel, loam and finished cement.

Write for Thermoid Conveyor Belting Catalog #3679, containing full engineering data.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Circle No. 149 on Reader Service Card for more information

NEW Fairbanks Series "23" Double Ball Race SWIVEL CASTER

**STRONGER ON
EVERY POINT**

The NEW Fairbanks Series "23" Double Ball Race Swivel Caster* line is designed for greater load carrying capacity in the medium duty field.

1 NO KING-PIN
the No. 1 weak spot of ordinary casters. It's eliminated!

"LOCK-WELD" CONSTRUCTION

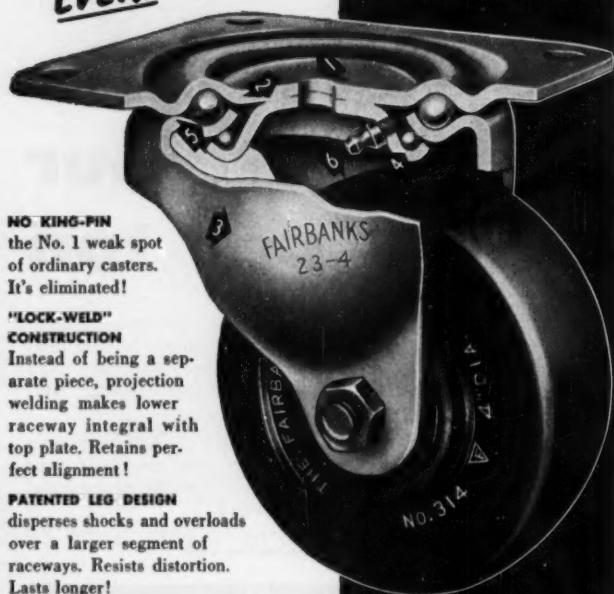
2 Instead of being a separate piece, projection welding makes lower raceway integral with top plate. Retains perfect alignment!

3 PATENTED LEG DESIGN
disperses shocks and overloads over a larger segment of raceways. Resists distortion. Lasts longer!

4 LARGER SECONDARY RACEWAY AND BALLS
provide tremendously increased swiveling efficiency and greater shock absorption of overloads. Easier working!

5 COINED RACEWAYS
insure smoother operation through extra hardness. Improve with use!

6 PRESSURE LUBRICATION
by Zerk Fittings reduces friction and wear!



* PATENTED

Rigid Casters, Series "33" in matching heights

THE

Fairbanks

COMPANY

393 LAFAYETTE STREET • NEW YORK 3, N. Y.

Branches: New York 3 • Pittsburgh 22 • Boston 10 • Rome, Ga.

TRUCKS • VALVES • DART & PIC UNIONS • CASTERS

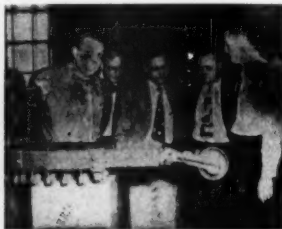
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ASSOCIATIONS

Continued

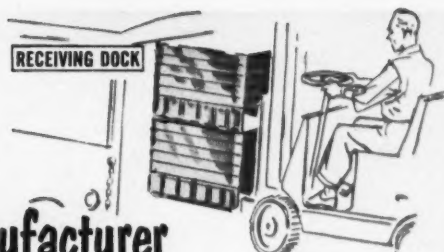
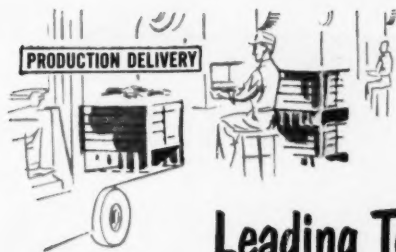
Div. of Ford Motor Co., is president; Alfred G. Woodcroft, Carboly Dept. of General Electric Co. is executive vice president; Charles E. Cumiskey, of Cumiskey & Associates, is vice president; Elmer Hamina, McCarthy-Root Co., vice president; William S. Montford, Consolidated Freight Co., is treasurer, and Hugh D. Campbell, Detroit Board of Commerce, is secretary.

● The largest cigarette factory in the world under one roof was toured recently by the Falls Cities Chapter of the American Material Handling Society. W. B. Fravert of Philip Morris & Co. Ltd., Inc. guided the group through his company's Louisville plant, where they witnessed fork lift trucks bringing in giant hogsheads of tobacco as well as belt and roller conveyors dispatching cartons of cigarettes to railroad cars and trucks.



Members of the Falls Cities Chapter of the AMHS are shown a box sealing machine with dater roll attachment during their tour of the Philip Morris cigarette plant. Left to right are Cecil Denton, of W. A. Marschke & Sons; P. B. Lanham Jr., of The Lanham Co.; John E. Grenewald and Perry Stapleton Sr., both of Pillsbury-Ballard Co., and W. B. Fravert, Philip Morris guide.

● The Material Handling Institute convenes at 1:30 p.m. September 9 in Hotel Cleveland, Cleveland, Ohio.



Leading Tool Manufacturer

Saves \$50,000

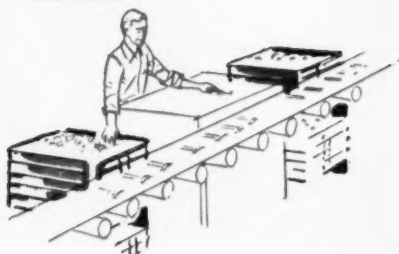
First Year

With

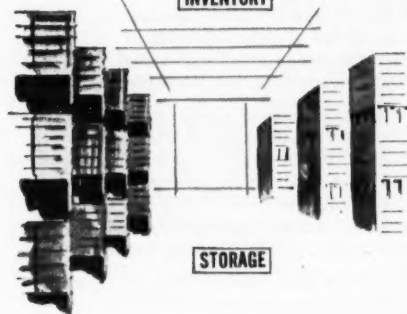


job designed
containers

ASSEMBLY



INVENTORY



STORAGE

PARTS COSTS



The **POWELL** Pressed Steel Co.
Hubbard, Ohio

Originators of
Cold-Formed
All-Steel
Handling Equipment

One of the nation's leading tool manufacturers discovered a savings of more than \$50,000 in a single year following a modernization of his material handling methods. He had switched from the conventional bins, bags and hand pushed wheel carts to Powell all-steel containers handled by fork lift trucks. Following is a brief review of where and how the savings were effected.

RECEIVING DOCK—Here the rough stock entered the plant. Unloading 12 tons under the old method required 12 hours. By using the new method 12 tons were handled in an hour and a half with but two-thirds the labor force.

PRODUCTION DELIVERY—Delivering stock from bins to machines. A time check run at this point found the old method required 10 hours. The new method, with boxes used as portable bins, required but four hours.

ASSEMBLY—Finished parts to assembly floor. The same manpower accomplished this job in one-fourth the time formerly required.

INVENTORY—Although the plant had considerably more material and parts at the time the Powell containers were used it cost 22 percent less to take the inventory.

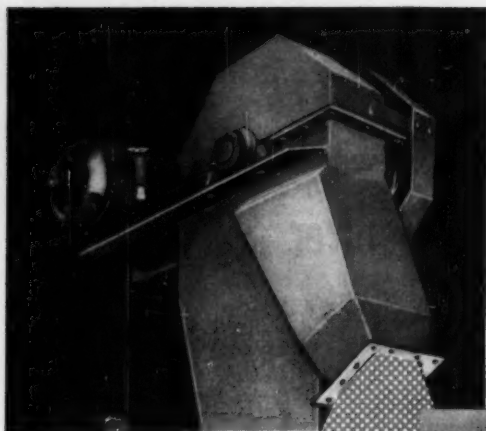
STORAGE—The space saved, even though a greater inventory was carried, enabled the manufacturer to install a complete machine shop without building additions.

PARTS COSTS—Suppliers began quoting lower prices when containers were furnished. By sending their Powell containers into their suppliers, thereby eliminating packaging, they discovered that delivery, too, became more efficient.

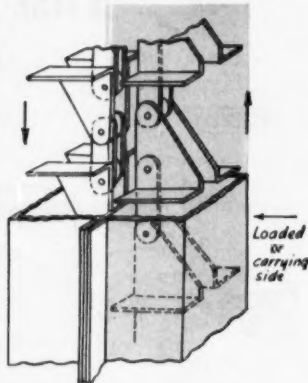
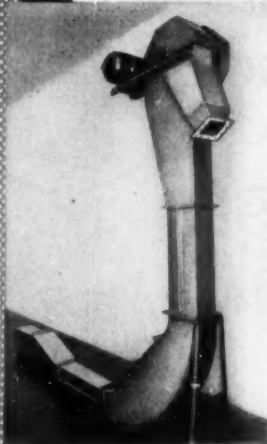
A roundup of savings the first year the Powell containers were in operation came to more than \$50,000. As the materials handling operation is refined even greater savings are anticipated.

If you're looking for additional space, more efficient handling of products and materials call in your nearest Powell representative Offices in principal cities.

Circle No. 122 on Reader Service Card for more information



moving bulk material?



Section Thru Vertical Run

**move it Faster with a
G-W FLOWMASTER**

Feeding, conveying, and elevating are all taken in stride by this versatile G-W Flowmaster. It moves a variety of bulk materials in horizontal, vertical, or inclined planes—or in any combination—faster, more efficiently, and more economically. This one does the job of three!

A series of solid steel flights on an endless chain moves the bulk material in a continuous stream through a totally enclosed, dust-tight (or gas-tight) closely-fitted casing. The Flowmaster is self-loading and self-discharging and is designed for either continuous or intermittent operation. It's another versatile result of G-W's 139 years of progress in *engineered* materials handling... a policy proved by reports of increased efficiency and economy from all phases of industry.

Want to know more about the G-W Flowmaster? We'll gladly send a data sheet and full information on availability, prices, and special construction. Write today.

When you think of ENGINEERED materials handling...

think of GIFFORD-WOOD

GIFFORD-WOOD Co.

Since 1814

HUDSON, NEW YORK

420 Lexington Ave.
New York 17, N. Y.

Railway Exchange Building
St. Louis 1, Mo.

565 W. Washington St.
Chicago 6, Ill.

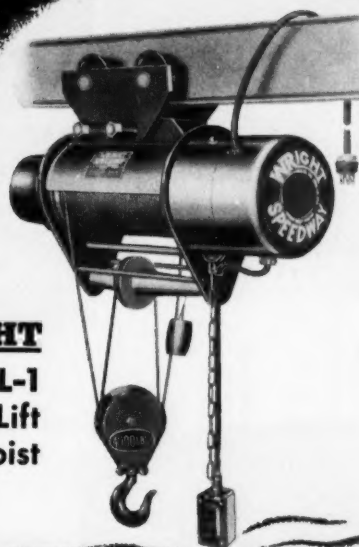
Ⓢ 5114

Circle No. 62 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953

an
ACCO
product

WRIGHT
Type L-1
Long Lift
Speedway Hoist



***You Can Lift 2 Tons 20 Feet
with this WRIGHT Speedway Hoist***

• If the ceiling is high and material must be moved over machinery and partitions, or if you want to lift from basement to second floor, here's a hoist that will do it.

The L-1 WRIGHT Speedway has a lift of 20 feet and is reeved with a 4-part single line that wraps in a single layer on a grooved drum. In either of two speeds, lifting or lowering is smooth and stable, so it is fine for either intricate lifting jobs or production material handling.

Motors of the L-1 WRIGHT Speedway have 30-minute ratings. In addition the L-1 has the five key long life features of all Frame 1 WRIGHT Speedway Hoists. These are: heat-treated and surface-hardened alloy steel gears, hard alloy silver electrical contacts in controller, heavy duty crane type safety limit stop, automatic multiple disc load brake, and ball bearing gear shafts. And there are others.

See your WRIGHT Hoist distributor today or write today to our York, Pa., office for DH-425

ACCO



**WRIGHT HOIST DIVISION
AMERICAN CHAIN & CABLE**

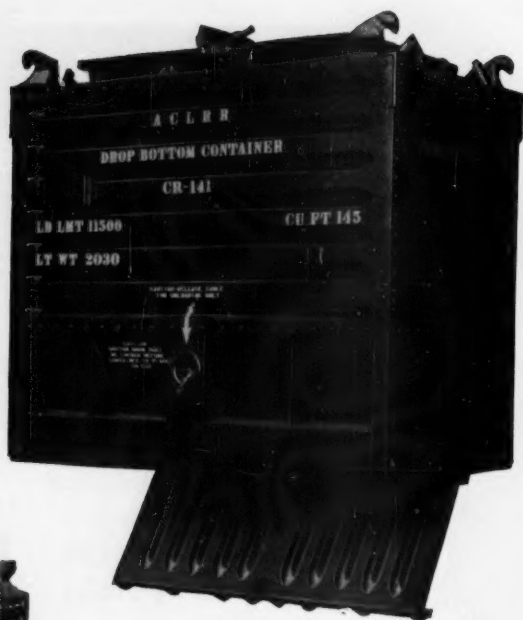
York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

WRIGHT
Hoists
Trolleys
Cranes

Circle No. 8 on Reader Service Card for more information

Check!

- ✓ Complete Discharge of Material
- ✓ Easily Operated
- ✓ Greater Speed
- ✓ Savings in Man-Hours
- ✓ Greater Efficiency
- ✓ Rugged
- ✓ Variable Size



Quick And Complete Discharge Bulk Materials Container



Controlled Discharge Bulk Materials Container

- ✓ Positive Manual Control of Discharge of Material
- ✓ Easily Operated Geared Rotary Valve
- ✓ Gears Completely Protected
- ✓ Greater Efficiency
- ✓ Rugged
- ✓ Variable Size

Consult with us for improved handling of your bulk materials

THE YOUNGSTOWN STEEL DOOR CO.



CAMEL SALES CO. CAMEL COMPANY LIMITED

Cleveland • Chicago • New York • Youngstown

Circle No. 167 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953



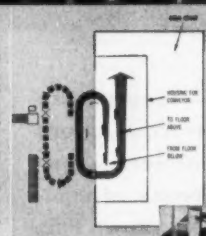
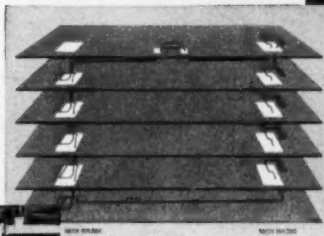
WEBB

Power and Free CONVEYORS

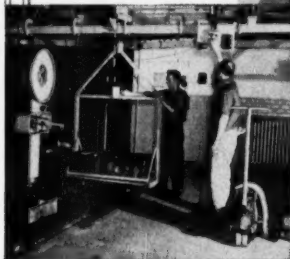
"Unstack" Six Floors

Key:

- Main Conveyor
- - - Loading Station

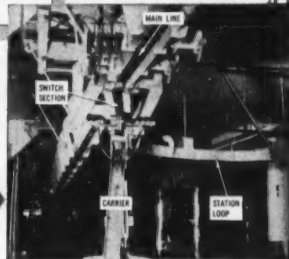


How a loading station works.



Operator (right) pushes button to automatically switch next empty carrier from main line to his station loop. Man at left dials on selector switch the destination of loaded carrier.

Note automatic switch for channeling proper carriers from main line to station loop.



With Webb "Power" and "Free" conveyor system Stewart-Warner now gets the benefits of single-story operation in their multi-story buildings. The conveyor system will pay for itself through savings in indirect labor costs alone (truckers, elevator operators, stock chasers). Perhaps even greater benefits are derived from the savings afforded by lower inventory and improved production scheduling through:

- More effective supervision of materials handling • Less damaged parts
- Speedier parts delivery between operations • Fewer misplaced loads
- Better and controlled utilization of fork trucks and elevators

This conveyor system, which is 2099 feet long, can be adjusted to run at any speed from 10 to 60 fpm. Selector switches on each carrier automatically switch carriers off main line onto selected station loop for storage, loading or unloading. In addition, station operators by simply pushing a button at their station can switch empty carriers into their loop. Conveyors inclined 30° ascend and descend between floors in housings made of light structural steel and located in two open courts.

JERVIS B. WEBB CO.

Conveyor Engineers and Manufacturers

3114 ALPINE AVE. • DETROIT 4, MICHIGAN

Send for fully illustrated catalog that provides complete information on Webb conveyors.

OFFICES IN PRINCIPAL CITIES OF THE WESTERN HEMISPHERE AND LONDON, ENGLAND
 FACTORIES: DETROIT • LOS ANGELES • HAMILTON, ONTARIO

Circle 159 on Reader Service Card for more information.

how **BARRETT** helps you keep maintenance costs down

POWEROX IS A GOOD EXAMPLE OF THE BARRETT MONEY-SAVING LINE.

Rugged stamina—long service life—simple construction, all are **POWEROX** performance features; your assurance of minimum non-productive down time for repairs. You will find a labor-saving Barrett product designed to solve your handling job . . . economically!

HAND AND POWER LIFT TRUCKS • HI-LIFTS • TELESCOPIC LIFTS • AISLE-SAVER • LIFT-A-LOFT • NIFTY-SYSTEM • SKIDS • DOLLIES

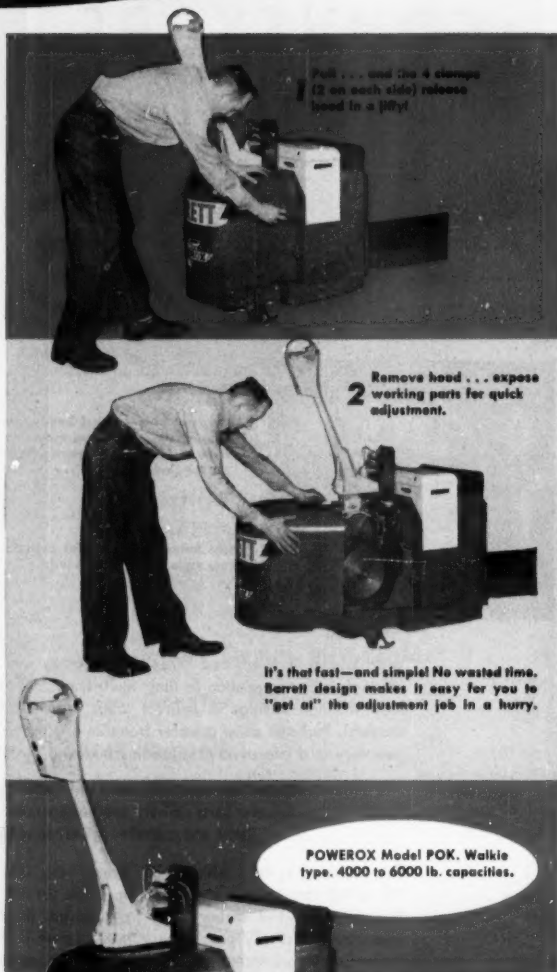
NEW
YOUR PLANT MANAGER
WILL WANT THIS INFORM-
ATIVE CATALOG 535 on
the complete Barrett line. A
request will bring his copy,
promptly!



B **BARRETT**
ONE MAN DOES MORE THAN 3 OR 4... WITH A BARRETT

BARRETT-CRAVENS COMPANY
4619 S. Western Blvd., Chicago 9, Illinois
Representatives in All Principal Cities
Canadian Licensee:
S. A. Armstrong, Ltd., Toronto, Canada

*Barrett
Handling
Equipment*

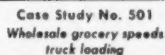


Circle No. 19 on Reader Service Card for more information

...you need this
Valuable Book!

Time-saving, cost-cutting... **lifting, loading, and materials handling for...**

Ablett
Aircraft Plants
Automotive Plants



Case Study No. 502
Hydraulic lift loads ice
into refrigerated trucks.

Case Study No. 503
Fork truck shipments
facilitated by lift.

Case Study No. 504
*Patients lowered into hydrotherapy
bath by hydraulic power.*

Case Study No. 505
Bascule bridge solves warehouse
traffic snarl

GLOBE

THE BEST LIFT

Circle No. 63 on Reader Service Card for more information

Globe Hoist Company F 529
1000 E. Mermaid Lane, Phila. 18, Pa.
Send me without charge or obligation a
copy of "Case Studies in Modern Lifting."
Name
Company
Address
City and Zone State



LANES OF PLASTIC TAPE LAST 5 TIMES LONGER AT KROGER!

After testing "Scotch" Plastic Tape No. 471 as a lane-marking material in their Cincinnati warehouse, Kroger Company, third largest grocery chain in the nation, gave the go-ahead to use the tape in all Kroger warehouses from coast to coast.

William Dagenbach, General Foreman, writes: "We've used bright yellow "Scotch" Plastic Tape No. 471 for marking off aisles and storage areas for more than 18 months, and we're very happy with it. We can change our floor plan easily and quickly."

And the tape lasts 5 times longer than usual lane-marking materials. Try it and see! See how the pressure-sensitive adhesive sticks at a touch—and *tight*. See how much time you save since you don't have to wait for tape to dry. In 8 stand-out colors including: yellow, white, red, orange, blue, green, brown and black.

Stock up today! Your distributor can supply you, or write Minnesota Mining & Mfg. Co., Dept. F-93, St. Paul 6, Minn., on your company letterhead for a sample roll for testing purposes.



The term "Scotch" and the plaid design are registered trademarks for the more than 300 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.



Circle No. 109 on Reader Service Card for more information

What's

NEW in equipment

Fork Truck Hoist Protector

Extra protection for Towmotor fork trucks operated in dusty or abrasive conditions is said to be assured with this hoist protector introduced by Towmotor Corp. Recommended for installation on all fork trucks used in scoop operations, the tubular steel protector telescopes upward or downward to match the movement of the lift plunger. Thus, the plunger is constantly shielded from excessive pitting and scoring by any abrasive agents that may be encountered.

Circle No. 194 on Reader Service Card for more information

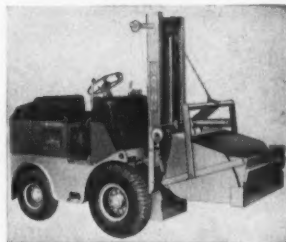
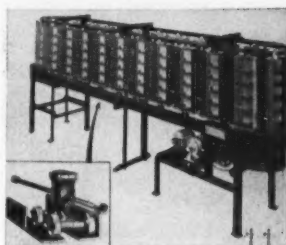


Table Height Cable Conveyor

A table height, power-driven cable conveyor with 4-wheel carriers attached to a $\frac{3}{8}$ -inch steel cable has been announced by The E. W. Buschman Company. Pallets, shelved trays, fixtures, rotators and other devices can be attached to the conveyor trolleys. The conveyor can also be attached to load bars or outrigger roller frames for production, assembly or finished operations.

Circle No. 195 on Reader Service Card for more information



Hydraulic Rotating Device

A compact, hydraulically-operated load revolving mechanism for use on Elwell-Parker fork trucks has been developed by Elwell-Parker Electric Company. The unit, which permits 360-degree rotation, is designed for use in conjunction with other fork truck attachments. The unit's stationary housing attaches to the truck's load elevator plate. A rotating base, to which is fastened the desired load-supporting device, is mounted on the stationary base. The entire rotating unit can be removed easily from the elevator plate.

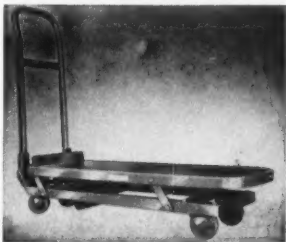
Circle No. 196 on Reader Service Card for more information



Hydraulic Skid Truck

Ironbound Box & Lumber Company introduces this hydraulic skid truck for inter-plant transportation of loads up to 1000 pounds. Among its features are completely-hydraulic raising and lowering. Easy swiveling action and narrow width permits use in narrow aisles, yet the deck is wide enough to give full stability to loaded skids. The fully-covered steel platform allows the truck to be used as a platform truck. Chassis is all-welded and "safety" corners are included.

Circle No. 197 on Reader Service Card for more information



WHAT'S NEW IN EQUIPMENT

Continued



Palletless Handling System

The Pak-Loader fork truck system of handling which does many jobs with no manual aid and without pallets has been introduced by The Yale & Towne Mfg. Company. A pusher attachment is mounted on a Yale fork truck. Pallet-plate fork adaptors are installed over the standard forks. These adaptors permit holding or releasing of an all-steel smooth top pallet-plate. The pallet-plate can be shoved under sturdy cargo and the load transported and unloaded with no manual aid.

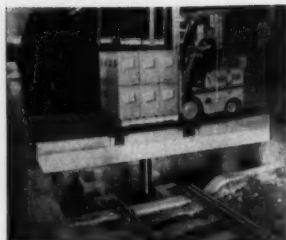
Circle No. 198 on Reader Service Card for more information



Mechanical Weight Recorder

The Howe Scale Company announces the Howe Mechanoprint, which is said to be a greatly simplified and modern mechanical weight recorder, built-in as an integral part of the Howe Tape-Drive Dial head. The Mechanoprint is conveniently located on the right-hand side of the Dial head. A simple touch of the push bar causes the weight to be printed, and the total lapse of time from pushing of the printing-bar until the recorded weight is made, is one second. Printing also can be controlled by a trip switch on a conveyor line, on a monorail system and by other methods.

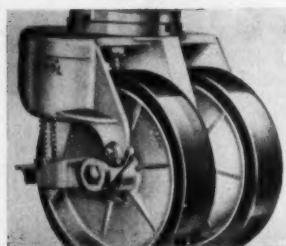
Circle No. 199 on Reader Service Card for more information



Spur Track Bridge

Rotary Lift Company has developed an Oildraulic Transfer Bridge which raises to provide a "shortcut" bridge across railroad tracks, and lowers to become an integral part of the track system for train operation. The hydraulically-operated bridge forms a roadway over which traffic, including power trucks, can move on a straight line. Oildraulic Transfer Bridges are designed and built for the particular job to be done.

Circle No. 200 on Reader Service Card for more information



Dual Individually-Sprung Caster

Smoothness of movement is engineered into this dual individually-sprung shock-absorbing caster manufactured by Aerol Co., Inc. The 12-inch wheel and caster units are manufactured of #356 heat-treated prime aluminum alloy cast in permanent molds, insuring concentricity and interchangeability of parts. Coil springs are easily changed to meet load ratings of specified jobs, and they may be altered in the field. Since both wheels are in direct contact with the surface at all times, these casters are applicable where ease of movement over uneven surfaces is desired.

Circle No. 201 on Reader Service Card for more information



Special-Based, Self-Dumping Hopper

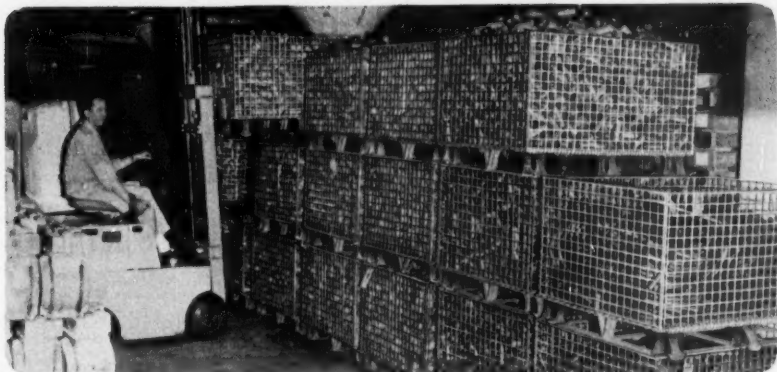
A Roura self-dumping hopper with a specially-designed base that permits moving with either a jack-tongue or a fork-type lift truck has been introduced by Roura Iron Works, Inc. The hopper can be moved by inserting the jack-tongue in the socket on the special base of the hopper and wheeling it. This feature is available with hoppers of 1/2-yard to 2-yard capacity, and is accomplished through the adding of wheels to the base of the hopper.

Circle No. 202 on Reader Service Card for more information

(Continued on page 169)

They met the METER PROBLEM

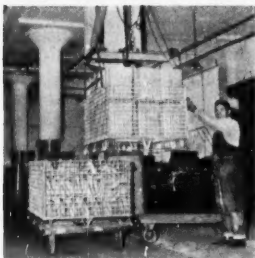
... with USP PALLETAINERS!



Component parts go into temporary storage saving time and floor space.



High visibility of contents makes inventory and selection fast and easy.



Electro-welded, reinforced, steel rod construction takes stress in stride.



Palletainers become a "production line" through successive work stations.

It was one tough problem. A 57% jump in the population of Los Angeles county in little more than a decade meant an increase of 40% in the storing and handling of gas meters by the Southern California Gas Company. Existing warehouse facilities had to do!

The company met the problem head-on . . . with USP Palletainers! First they specified that meter manufacturers ship all new units in Palletainers for maximum speed in unloading and storage. Component parts for repair purposes were handled the same way. Then they utilized Palletainers throughout their own inspecting, cleaning, repairing and repainting operations. Moved easily on semi-live skids or fork trucks, the virtually indestructible Palletainers helped boost volume by 40% with a 40% saving in labor! In one loading operation alone, time was cut from 4½ to 1½ hours. Thanks to Palletainers' stacking feature, floor space never became a problem.

The Southern California Gas Company now has 1,350 Palletainers at work, another 450 on order. They report practically no cost of maintenance during the past three years. If you would like complete details on this operation be sure to let us know. We feel the facts speak for themselves . . . Palletainers could effect similar savings for you.

UNION STEEL PRODUCTS COMPANY

Albion, Michigan

1903 • Our Golden Anniversary • 1953

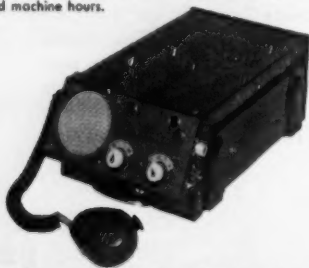


Circle No. 156 on Reader Service Card for more information

They gave a fork lift a "VOICE" and saved OVER \$15,000 A YEAR!



Coordination increases efficiency. Dispatcher directs fork lift operators from Motorola base station console, coordinates operations and increases productive man and machine hours.



Uni-Channel mobile radio—serves as fixed or mobile station. Built-in "Permakay" filter eliminates 15 nuisance tuning adjustments, assures instant communications between Central Dispatcher and fork lift operators.

Leading Mfr.* cuts handling costs from
45¢ to 30.9¢ per load with

Motorola 2-way radio

Before installing Motorola 2-way radio, it cost this company 45¢ to handle each fork lift load. Immediately following installation of Motorola communications, cost per load fell 14.1¢. Figured on a 12-month basis, total savings amounted to \$15,074.04—a 500% return on the initial investment of \$3,038.54. In other words, Motorola radios paid for themselves in just 2½ months of use—*actually paid their own cost five times over in one year!*

Motorola makes it a *pleasure* for you to own and operate your own radio communications system. Eight exclusive Motorola improvements guarantee precision selectivity, durability and obsolescence-proof design. And, the exclusive "Permakay" filter eliminates 15 nuisance tuning adjustments.

Get the facts telling how Motorola pays for itself in direct savings. Let a friendly Motorola engineer in your vicinity give you the complete story.

**Company's name is in our files.*

Write Dept. 2286-FL today!

2-way Radio

Motorola

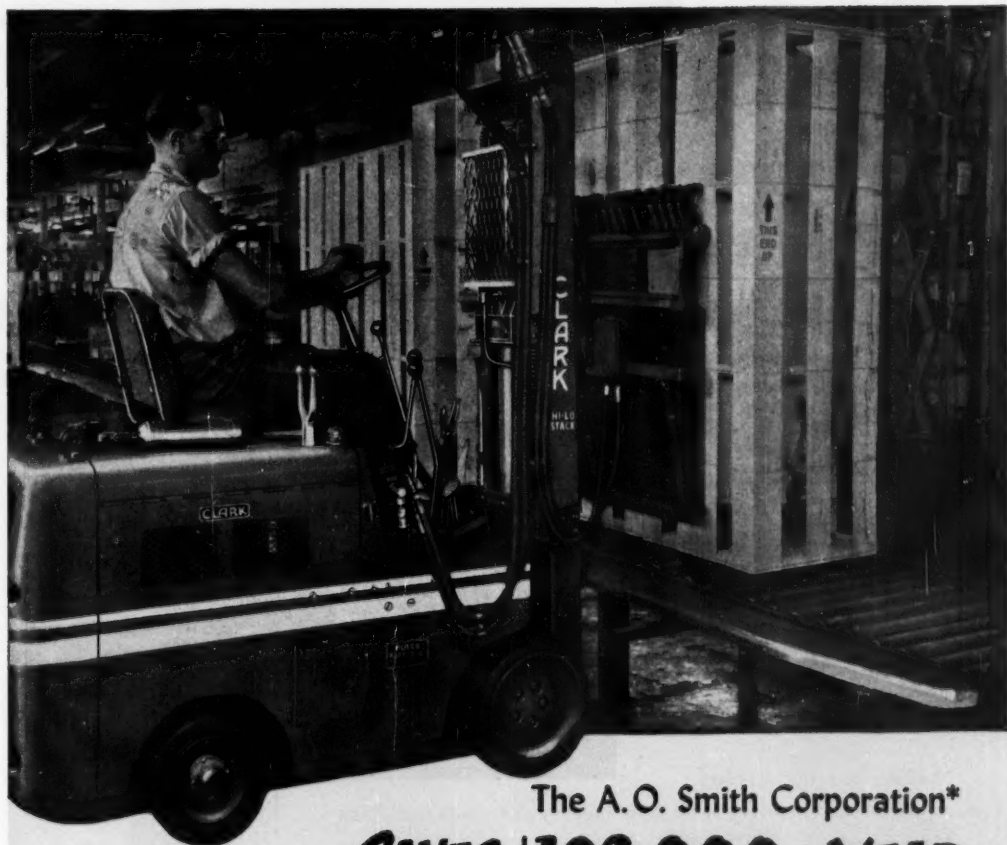
Communications & Electronics, Inc.

A SUBSIDIARY OF MOTOROLA INC.

900 N. Kilbourn Ave., Chicago 51, Illinois • Rogers Majestic Electronics Ltd., Toronto, Canada

Circle No. 112 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953



The A. O. Smith Corporation*
SAVES \$108,000 a YEAR
 in materials handling!

This is what the A. O. Smith Corporation accomplished:

- 1 Saved 43,300 man-hours or \$78,000 a year in shipping and warehousing.
- 2 Minimized breakage and damage to crates, saved \$30,240 a year on repair labor.
- 3 Eliminated 4000 double-faced pallets costing \$16,000.
- 4 Accomplished a 30% reduction in required storage area—crates are exactly-positioned in neat rows, two, three and four high.
- 5 Cut boxcar loading time in half—one car is fully-loaded in one hour flat, by one man.
- 6 Eliminated hazardous difficult labor—all lifting is done mechanically.



*
 Permoglas-Heating
 Division, Kenton, Illinois
 Detailed case history
 available on request.

WITH A SPECIAL "FINGER-LIFT" device for crato-handling, combined with a side-shifter attachment for their fork trucks, the A. O. Smith Corporation not only reduced labor costs \$108,000 a year—they also eliminated \$16,000 worth of pallets and made available 27 men and 3 trucks for other work!

As usual, CLARK plays a major role in this amazing savings achievement. Admittedly, not everyone can save \$100,000 a year with modern handling equipment; but by the same token, you might save more, depending on the nature of your handling problem. Why not find out what's in it for you? Simply ask your CLARK Dealer to analyze your own particular handling activities. Don't pass up this opportunity for really big savings!

CLARK ELECTRIC, GAS, DIESEL, L.P. GAS
FORK TRUCKS
 AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK MICHIGAN

Please send: ☐ Case History ☐ Material Handling News
☐ Have Representative Call.

Name _____
 Firm Name _____
 Address _____
 City _____ Zone _____ State _____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

**Ford
Moves
Faster
with**

NESTIER
®

**On
The
Job**



NesTier baskets in use at Ford Motor Company's Mound Road plant in Detroit. Parts taken from washer are quickly drained in baskets while moving to next operation.

NesTiers are the *standard* containers that do every *small parts handling job*—from stockroom to loading dock!

The NesTier Expanded Metal Basket shown here moves parts through all phases of production—eliminates need for changing containers before and after cleaning operations.

NesTiers *nest* when empty to save space. When filled, they *tier* in rigid stacks, with parts in each container visible, easily accessible. NesTiers can be transported by roller or overhead conveyors, on pallets and skids—can be easily carried by hand.

At every point, NesTiers speed the flow of work, *cut production costs!*

3 standard sizes in sheet metal, aluminum, stainless, expanded or perforated metal.



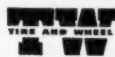
**WRITE NOW FOR
FREE FOLDER**
which gives full description of all units in the NesTier System. Our representatives will assist you in engineering a complete small parts handling system in your plant. They'll also arrange a NesTier demonstration for you, at your request.

**THE CHAS. WM. DOEPKE
MANUFACTURING CO., Inc.**
ROSSMOYNE, OHIO

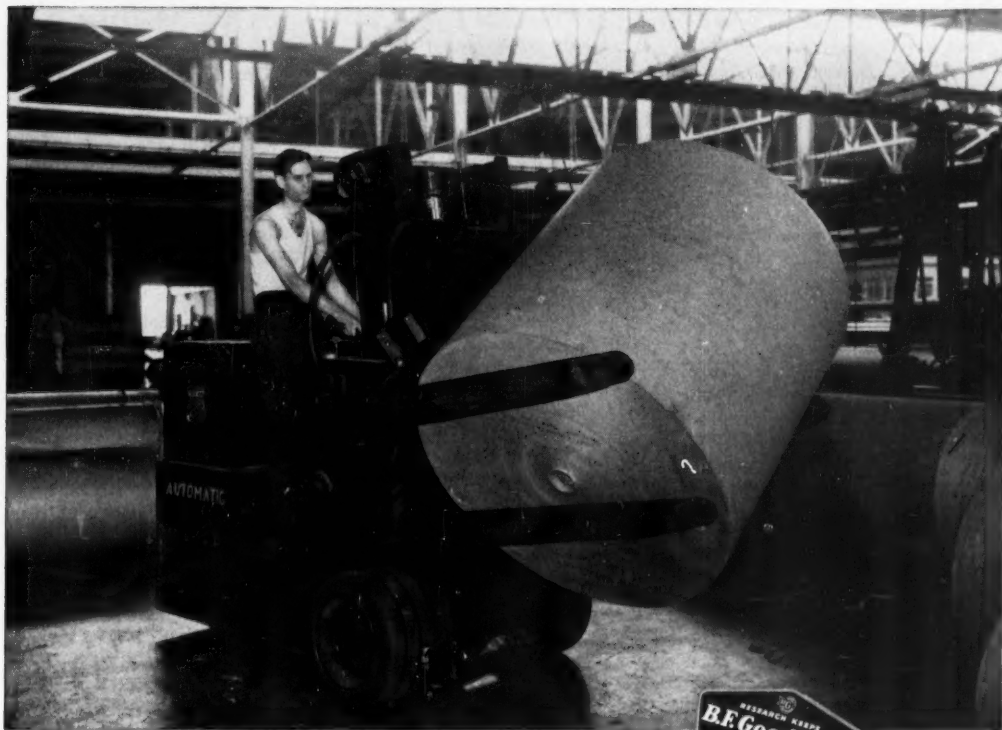
Circle No. 45 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953

B.F. Goodrich



ANALYSIS man puts an end to
unnecessary industrial tire cutting, chipping



Save as much as 50% on tire costs

Debris-strewn floors, sharp projections along trucking aisles or on the trucks themselves, overloading and collisions all can cut and chip an industrial tire. Or tire failure may be caused by the tire being used on a job for which it was never designed.

The B. F. Goodrich Tire and Wheel Analysis man can put an end to unnecessary tire troubles, can save you up to 50% on industrial tire costs. He knows which tire is right for any given set of operating conditions—solid, semi-pneumatic or pneumatic—which tread design and compound is best to use. Without obligation, he will put his training to work on your problems, recommend the right tires for you to use, give you maintenance tips that can cut costs as much as 20%.

The TW Analysis man's advice is impartial, for B. F. Goodrich makes, and BFG retailers sell, a complete line of industrial tires. Use the tires he recommends and save yourself unnecessary tire expense. Get increased, maybe even doubled, tire life.

To find out more about this free B. F. Goodrich Tire and Wheel Analysis Plan, send in the coupon or call your BFG retailer. A special TW Analysis Plan is available for manufacturers of industrial handling equipment.

Specify B. F. Goodrich tires when ordering new equipment

Circle No. 64 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953



The B. F. Goodrich Company
Department TW-165, Akron 18, Ohio

Please send me:

- ☐ Additional information on your new Tire and Wheel Analysis Plan
- ☐ A free copy of your "Industrial Tire Guidebook"

Name _____

Company _____

Street _____

City _____ Zone _____ State _____

Literature

featured in this month's advertisements

Direct savings can be traced to the use of two-way radio in controlling lift truck operations, according to literature available from Motorola Inc.

Circle 112 on Reader Service Card

An illustrated book entitled, "Economical Material Handling," may be requested from The Loudon Machinery Co. It presents case histories telling how the Loudon Monorail Systems have saved time and money in many diversified industries.

Circle 88 on Reader Service Card

A new bulletin No. 40 has been released by the E. W. Buschman Co. describing its overhead cable conveyor system which provides smoother, reduced handling operations on a continuous flow basis.

Circle 25 on Reader Service Card

Modern battery-powered industrial trucks demand that battery developments keep pace with the trucks they must power. Literature from Gould-National Batteries Inc. points to the features with which Gould has kept up that pace.

Circle 65 on Reader Service Card

Pittsburgh Steel Products Co. has information available telling how to reduce costs for labor and dunnage through the installation of Pittsburgh Bulkheads in securing railway cargoes. They are said to be installed by two men in two minutes and pay for themselves in about 20 trips.

Circle 121 on Reader Service Card

Complete information may be obtained from the Wilkie Co. describing its Telescopic Conveyor. They are said to increase loading speed because the conveyor brings load right to point of stacking. As the truck or car fills up, the conveyor is pushed back as required.

Circle 164 on Reader Service Card

Specially designed trays for handling intricate or delicate parts are described by United States Rubber Co. in literature telling about Royalite, its lightweight plastic material from which the containers are molded.

Circle 158 on Reader Service Card

Catalog No. 83 may be requisitioned from Union Metal Mfg. Co. It tells of numerous economies and production boosting results derived from use of the Work-O-Matic System.

Circle 155 on Reader Service Card

Belting Catalog No. 3679 may be obtained from the Thermoid Co. It provides complete engineering data on belting for simple as well as unusual requirements.

Circle 149 on Reader Service Card

The Silent Hoist & Crane Co. has available Bulletin No. 89 which gives full details on the Krane Kar Swing Boom Mobile Crane. With its numerous attachments it is said to be quite versatile for yard handling operations.

Circle 141 on Reader Service Card

Ask for Bulletin I. T. when seeking information from The Service Recorder Co. regarding its instrument for recording industrial truck movements. Information as to the hours of running time can be invaluable in determining maintenance requirements.

Circle 138 on Reader Service Card

An illustrated folder showing the six basic ways of unitizing pallet loads may be requested from Signode Steel Strapping Co. They maintain a unit packing method can be devised for almost every type of shipment.

Circle 140 on Reader Service Card

Just off the press is the new Faultless Caster Corp. catalog No. 157 which contains complete caster recommendations for all industries. It has a full 80 pages of data to help solve your material handling problems.

Circle 54 on Reader Service Card

A detailed data sheet which includes prices, delivery and special construction features may be obtained from Gifford-Wood Co. covering equipment for the free movement of bulk materials during feeding or storing operations.

Circle 62 on Reader Service Card

Bulletins SB 2039 and SB 3808 are available from Thomas A. Edison Inc. telling the story of dependable power obtainable from storage batteries. Advantages and comparative costs are explained in detail.

Circle 47 on Reader Service Card

A new attachment folder may be obtained from the Elwell-Parker Electric Co. describing the many versatile attachments available for use with E-P fork trucks.

Circle 48 on Reader Service Card

Bulletin No. 1344 may be requested from the Baker-Raulang Co. giving the whole story on the company's recently developed Gas-O-Matic fork truck.

Circle 17 on Reader Service Card

A copy of "Scotch Pressure-Sensitive Tapes For Packaging" may be requested from the Minnesota Mining & Mfg. Co. Many bulky shipping containers now are being sealed with tape faster and more economically, the manufacturer maintains.

Circle 108 on Reader Service Card

A new booklet telling how to save money with belt conveyors may be obtained from Mechanical Handling Systems Inc.

Circle 102 on Reader Service Card

A descriptive illustrated folder giving all the advantages of Mead Chestnut Poke-Pak to both shipper and receiver. You have no wooden pallets to maintain since Poke-Pak is said to be both inexpensive and expendable, according to the manufacturer, Mead Board Sales Inc.

Circle 101 on Reader Service Card

Bulletin LS-1 may be obtained from Mathews Conveyor Co. announcing and describing in detail the company's recently developed Loadstar 4-inch trolley.

Circle 100 on Reader Service Card

"Case Studies In Modern Lifting" is the title of a new book recently released by Globe Hoist Co. It tells how Globe OILIFT hoists have helped control handling costs in numerous diversified applications.

Circle 63 on Reader Service Card

The Anthony Co. has released a new brochure which explains in detail the many reasons why Anthony Lift Gates are said to cut delivery costs up to 50 percent.

Circle 12 on Reader Service Card

Details of fully automatic and semi-automatic case sealing machines may be found in literature available from ABC Packaging Machine Corp.

Circle 168 on Reader Service Card

Information of streamlining packaging operations may be obtained from Nashua Corp. Literature includes details of the National Tay-Per tape dispensing machine and printed "Informer" Tape.

Circle 115 on Reader Service Card

A complete descriptive folder may be obtained upon request from Micron, Inc. covering its line of Lever Dollies.

Circle 106 on Reader Service Card

A COMMON PROBLEM:
*How Best to Handle
"In-Between Loads"?*

See us at The National Materials
Handling Exposition, Philadelphia,
Booth 1434, May 18-22.

Every business has them: Loads too
heavy for safe hand lifting, yet not
large enough to justify the use of
big, expensive equipment. Loads that
vary in size and shape, that move
on no fixed route, and that must be
handled at many height levels.

A Happy Solution ←

Use *BIG JOE Hydraulic Lifts



Manual Platform
Model from
\$236.50



Battery Operated
Fork Model from
\$587.50



Manually Operated Units—Capacity 750 lbs.,
Lifting Heights to 58"



Battery Operated Units—Capacity 1000 lbs.,
Lifting Heights to 80"

Write for Specifications on All Models

BIG JOE MANUFACTURING COMPANY

900-01 W. JACKSON BLVD., CHICAGO 7, ILLINOIS

Cable Address: BIG 107 Distributors in Principal Cities

*U. S. REG. IN
U. S. PAT. OFF.



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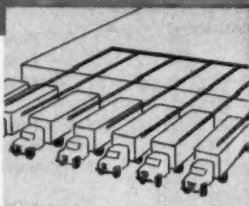



Less manual transportation...
faster...safer loading with...
WILKIE TELESCOPIC CONVEYORS...

At the Joseph S. Finch Co. loading platforms, ten Wilkie Telescopic Conveyors deliver the load to the point of stacking inside the trailers. As the trailers fill up, the delivery end of the conveyor is pushed back as required. Thus, trailers are being loaded faster and at less cost.

Shippers at the Joseph S. Finch Co. say, "We prefer Wilkie Telescopic Conveyors. They make the job easier, reduce safety hazards and maintenance."

Wilkie Conveyors soon pay for themselves in loading time saved. In addition, trailers are on the go sooner and more trailers are handled per day.



Cut your loading costs. Get complete information on Wilkie Telescopic Conveyors today. Write Wilkie Company, 5520 Arch Street, Philadelphia 39, Pa.



TELESCOPIC CONVEYORS

Circle No. 164 on Reader Service Card for more information

AD LITERATURE

Continued

A library of fast-reading data on how firms in nearly every business have turned material handling problems into profits may be obtained from the Rapid-Standard Co. Inc.

Circle 126 on Reader Service Card

A 16-page catalog may be requested from the Paltier Corp. explaining how to save storage space through the flexible Paltier System.

Circle 119 on Reader Service Card

Oxy-Catalyst Inc. will send complete details on its OCM exhaust attachment for gasoline powered industrial trucks. Wherever trucks are operated indoors, Oxy-Catalyst claims to solve the exhaust fume problem.

Circle 170 on Reader Service Card

Literature pointing out the advantages of G-E rectifier battery chargers in keeping industrial trucks in constant peak operation may be requested from the General Electric Co.

Circle 66 on Reader Service Card

A new bulletin No. 500 just released by Brummeler Steel Products Corp. presents the complete line of corrugated steel boxes and self-dumping hoppers.

Circle 23 on Reader Service Card

Engineering Bulletin 105T may be obtained from the Frank L. Robinson Co. describing the Ace "Trucker" pallet roller for shipping and receiving departments, terminals and warehouses.

Circle 82 on Reader Service Card

Towmotor Corp. invites requests for its free booklet entitled, "What Makes It Tick." They're referring, of course, to the company's line of "Cushioned Power" Diesel fork lift trucks.

Circle 152 on Reader Service Card

(Continued on page 60)

User saves 50% in time 75% in labor... Doubles Storage capacity

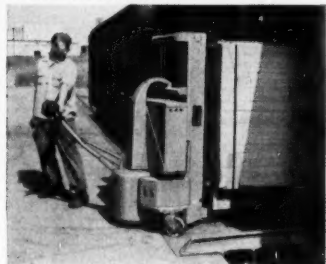
"With our new Lewis-Shepard Electric JackStacker, one man unloads a carload of paper in half the time previously required by 4 men using a hand truck!" says A. L. Pfotenhauer, Plant Superintendent for Rossotti California Lithograph Corporation, San Francisco.

Old Method



Four-man team jockeyed heavy skids of paper out of car into storage. Low lift truck couldn't stack skids, so storage was below peak efficiency.

New Method



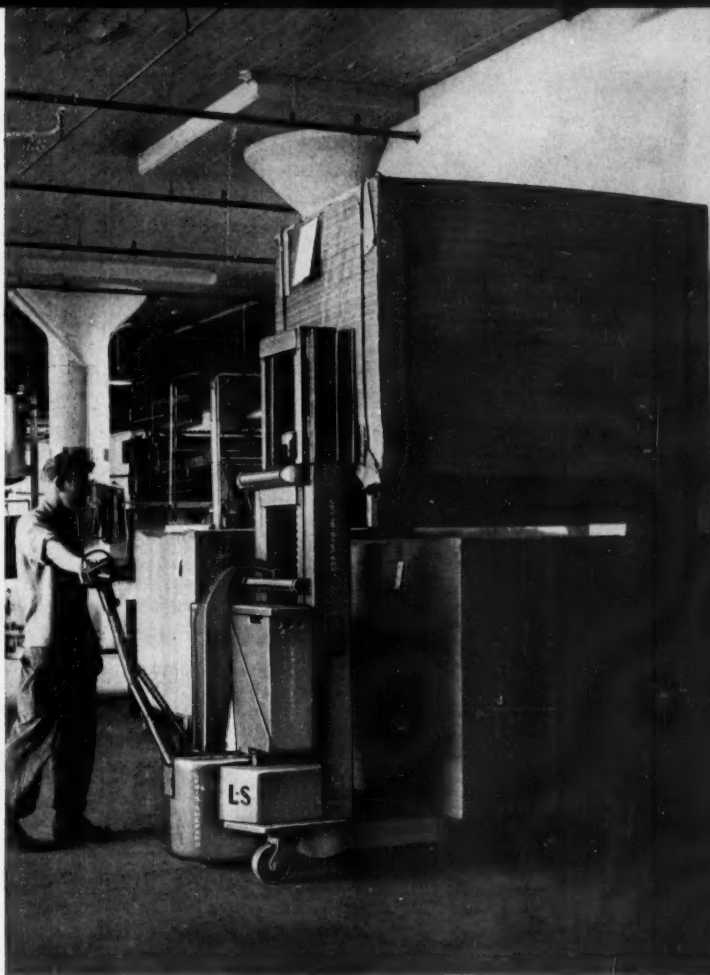
One man does the work of 4 in half the time with a dependable Lewis-Shepard Electric JackStacker. Low cost electric power eliminates the effort.

"...the efficiency of our JackStacker enables us to double-tier the skids and we've increased our storage capacity by 100%."

About this truck—

One of the many outstanding features of this truck is the exclusive Lewis-Shepard Articulated Linkage design which saves wear and tear on drive motor and gearing. Rugged load-bearing casters mounted on truck frame distribute load evenly, provide extra stability in high-stacking.

Parallel linkage insures constant load on drive wheel, compensates for rough spots in floors. Capacities to 4000 and 6000 lbs.



Lewis-Shepard's 6000 lb. capacity JackStacker electric walkie truck saves 50% in time, 75% in labor and doubles storage capacity for California user.

Rossotti's savings in time, manpower and space are typical of the experience of hundreds of users in many industries who have switched to Lewis-Shepard materials handling equipment.

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Mfg. Chemicals	74 L-S in use — reordered 6
Glass Mfr.	12 L-S in use — reordered 2
Rubber Goods	5 L-S in use — reordered 3



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TURN ON TIMER ... and the charger takes over automatically. When charge has been completed, units turn off automatically.

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Electric trucks have more power, work stronger and work longer when equipped with C & D *Slyver-Clad** industrial batteries.

C & D's Five-Fold method of insulation and retention holds active material in place on the positive grid and practically eliminates sedimentation. This reduces the size of the sediment space required and allows the use of longer and heavier plates. Thus in a C & D *Slyver-Clad* you get 20% more capacity—in the same size tray! And because this type of construction virtually eliminates "shedding," a C & D *Slyver-Clad* Battery lasts longer and delivers maximum capacity up to the end of its life. The next time you replace an industrial truck battery—install more power in the same space—install C & D!

*TM Reg.

AD LITERATURE

Continued

A catalog covering the entire line of grabs manufactured by Mansaver Industries may uncover the attachment that will double the output of your overhead or boom-type crane.

Circle 96 on Reader Service Card

Mobility, power, traction and precise control are features of the Model TM Payloader described in literature available from the Frank G. Hough Co.

Circle 73 on Reader Service Card

An illustrated catalog entitled, "The Gripper," may be requested from The Cambridge Wire Cloth Co. It explains the many advantages claimed by the manufacturer for woven wire slings.

Circle 27 on Reader Service Card

How the Mark-A-Zone Striper can be operated successfully without any experience is pointed out in literature available from S. B. Beugler, manufacturer of the equipment.

Circle 171 on Reader Service Card

Catalog No. 952 available from Allied Steel & Conveyors Inc. explains the details of Trans-Free automation, a feature of Allied conveyor systems.

Circle 5 on Reader Service Card

Literature on the Hohl adjustable dock ramps may be obtained from Hohl Machine & Conveyor Co. Flexible construction is said to keep ramp parallel to both truck and dock, regardless of off-center loading.

Circle 72 on Reader Service Card

A free sample print and information of trial offer are among literature available from Weber Addressing Machine Co. describing its Web-O-Print JC-3 hand printer that prints facsimile labels direct to containers.

Circle 160 on Reader Service Card

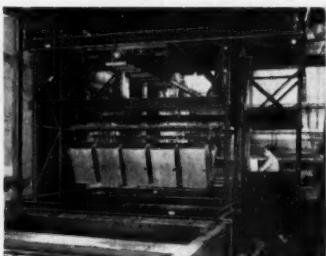
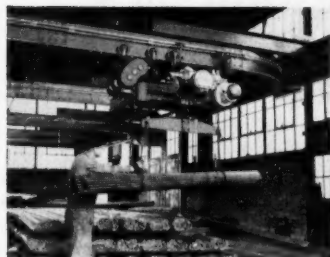
MONORAIL *Pays!*

INCREASES TONNAGE

From 26 to 48 tons of steel rod per day was the increased movement produced by a properly engineered monorail system.

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This simple system actually saved \$150 in handling costs within four months of operation. No more sheet-by-sheet movement.



SAVES TIME

Passage, on monorail, of metal parts through infra-red dryer, cuts 70% from former drying time. All other handling in plant on monorail.

MORE CAPACITY

30% more capacity was added to metal cleaning process by handling a third more units on carrier with one man operation from cab control.

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Operators claim to save 26 man hours per truck over former unloading time. Interlocking monorail cranes in the plant also reduce handling costs.



Write for Bulletin C-1
showing many more cases
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THE AMERICAN MONORAIL COMPANY

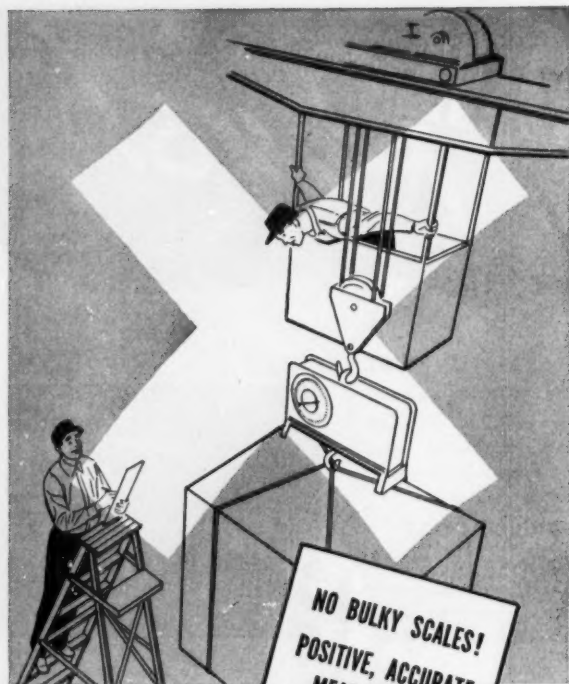
13129 ATHENS AVENUE

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FLOW • SEPTEMBER, 1953

61



BALDWIN-LIMA-HAMILTON

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Weigh faster... more accurately... with a **BALDWIN SR-4®** crane scale

Overhead weighing need no longer be cumbersome, time consuming, dangerous or inaccurate. By replacing ordinary weighing devices with a Baldwin SR-4 crane load-weighing unit, you can have all the advantages of electrical weighing—the speed—the conveniences—the high accuracy—the freedom from hazards.

A simple unit, this new electrical weighing device consists of the SR-4 pick-up, the instrument, and cable reel if required.

The portable crane scale is simply hung on your crane hook—the Baldwin SR-4 Load Cell is hermetically sealed, temperature compensated and free from moving parts. This load cell offers a reliable, rugged, accurate system, hard to obtain with other weighing methods.

The electrical signal can be transmitted to indicators, recorders, or printers located either in the crane cab or at any other convenient spot in the plant. Readings are easily made—without danger to employees—without the usual inaccuracies and lost time. Baldwin SR-4 Crane Scales have Standard Capacities of 5, 12½ and 25 tons. Other capacities are available on special order.

For further information write for our new bulletin on crane scales. Address Dept. No. 3111, Baldwin-Lima-Hamilton Corporation, Philadelphia 42, Pennsylvania.



MODEL TF-300. Capacity, 30,000 lbs. Equipped with solid rubber, pressed-on tires 15" in diameter and 7" in face. Bulletin E-21.



TRAIL SKID. For transporting long, hard-to-handle materials. Five models ranging from 7' to 16' long. Bulletin E-41.

THE **Strength**

YOU NEED FOR SERVICE

PLUS THE **Versatility**

REQUIRED FOR BEST ECONOMY

PHILLIPS

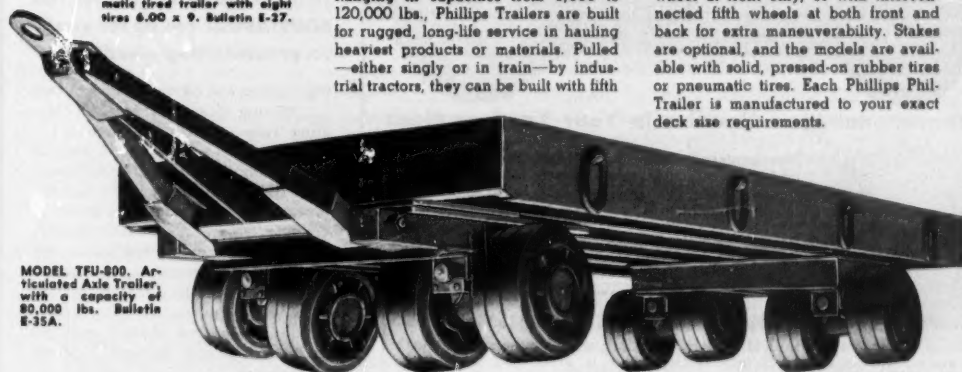
Phil-Trailers



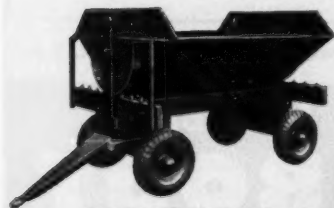
MODEL TFP-160. Capacity, 16,000 lbs. A low deck pneumatic tired trailer with eight tires 6.00 x 9. Bulletin E-27.

Ranging in capacities from 6,000 to 120,000 lbs., Phillips Trailers are built for rugged, long-life service in hauling heaviest products or materials. Pulled—either singly or in train—by industrial tractors, they can be built with fifth

wheel at front only, or with interconnected fifth wheels at both front and back for extra maneuverability. Stakes are optional, and the models are available with solid, pressed-on rubber tires or pneumatic tires. Each Phillips Phil-Trailer is manufactured to your exact deck size requirements.



MODEL TFU-800. Articulated Axle Trailer, with a capacity of 80,000 lbs. Bulletin E-35A.



SIDE-BUMP PHIL-TRAILERS. Capacities of $\frac{1}{2}$, $1\frac{1}{2}$, 2 and 3 cubic yards. All sizes available with pneumatic or solid rubber tires. Bulletin E-39.

BULLETINS AVAILABLE
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Manufacturers for 90 years!

Cut Time... Cut Cost...

Moving Anything around your plant and yard
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V MODEL

ROUSTABOUT

"It Lifts
as it Swings
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Three
models for
loads to 3, 5
and 10 tons

Sensational Load-Handler in Your Yard or Plant



New ROUSTABOUT equipped with electric magnet for efficient handling of scrap iron, castings, etc.

New modern design ROUSTABOUT gives you speedier load-handling, faster travel with load, more flexible maneuvering — on rough ground, up or down grade ... more load-handling power ... AND new low first cost, easier lower cost maintenance. Check job list at right — write us today for facts on how new ROUSTABOUT can solve your non-routine handling problems!

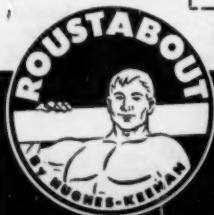
Important to Materials Handling Sales Outlets

ROUSTABOUT does not compete with your factory truck lines — it gives you additional service to your present customers. Some important territories open. Write us today.

Use Your Imagination!

Think of the jobs like these the
ROUSTABOUT can do for you
... at cost-cutting speed.

Big stuff on and off trucks, freight cars ... Moving large machines ... Handling bales, boxes, crates, drums — reaches over to get them, piles them up ... Moving big castings, motors, railroad and marine gear, tanks, boilers, pipe, lumber, structural steel, stone ... Loading transport planes, towing, handling heavy wings, engines ... Installing heavy valves, fittings, motors ... Shifting cars, hauling trailers, setting posts, laying pipe ... With bucket, handling sand or similar material; scrap iron, ingots, castings, forgings with magnet ...



Load Handling Specialists
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Mobile Load-Handler of 100 Uses!

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FLOW • SEPTEMBER, 1953

Improved Space Utilization

... through imaginative layout

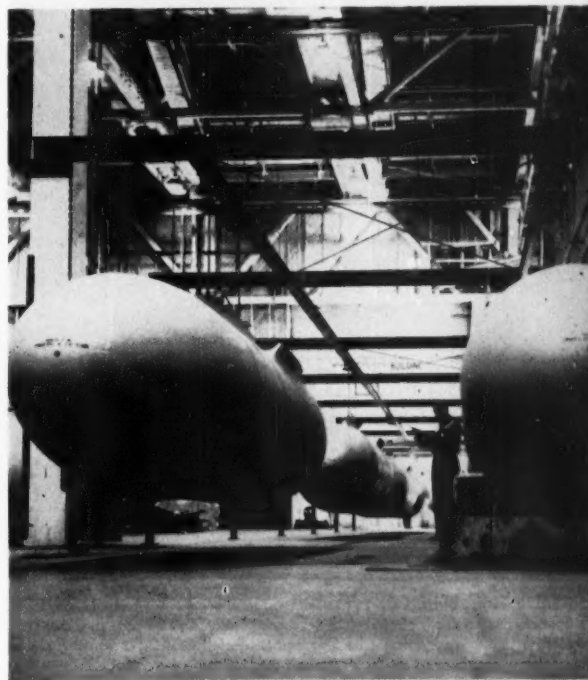
TO EINSTEIN, space is finite, unlimited and inseparably wedded to time in a continuum which permeates the universe. But to American Industry, space is the stuff out of which production comes and it is definitely limited by factory floor area.

Of course, space can be substantially "stretched" by the installation of more efficient machines and the development of more ingenious methods. At Ryan Aeronautical Co., for instance, six new lathes which have been installed to cut in half the machining time on jet exhaust cones, are also saving valuable space. Because they will machine both ends of the cones in one set-up, they have eliminated the space formerly needed to store a dozen big cones at each machine between set-ups.

No one can fail to be impressed by a modern machine tool, but too few realize that the savings which it brings about can be lost in a confusing shuffle of parts handling if the same imagination devoted to the utilization of new machines is not given to production flow and layout problems.

At Ryan, this responsibility is the chief concern of Methods Engineering, headed by Robert L. Clark. The objective is to put factory space, tools and manpower to the highest economic use. It would be relatively simple if the company were building a single product in mass production. In that event, Methods Engineering could determine what factory space should yield, and control that yield over a prolonged period, from flat sheet stage to finished product. But Ryan manufactures three basically different types of products and works as both prime and sub-contractor.

One section of the plant builds airplanes and big airframe structures of aluminum, such as Boeing fuselages and fuel tanks, which require large space allocations and substantial application of small hand tools.



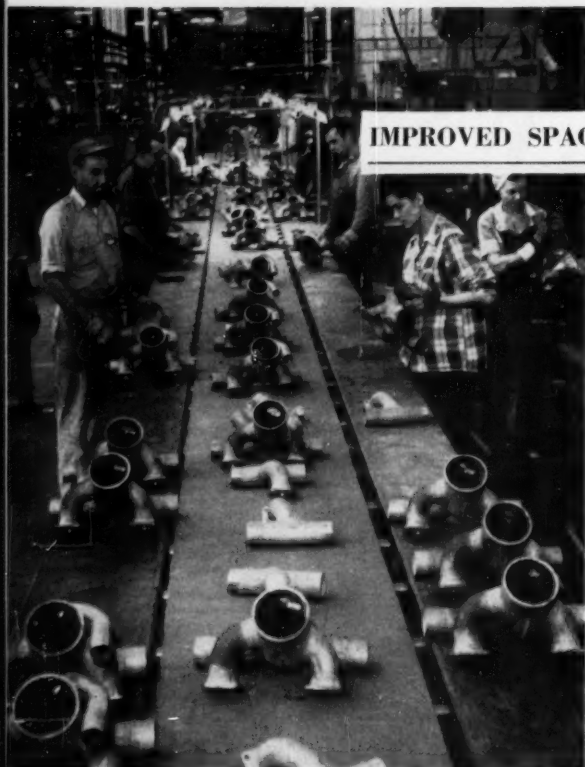
MONORAIL at Ryan Aeronautical Co. has been planned so that high fuel tanks occupy minimum of usable space during handling. This method also makes all surfaces of tanks accessible for processing.

Another fabricates stainless steel parts for jet engines which demand an array of big machine tools and furnaces due to their high precision specifications. Still another division builds aircraft exhaust systems which must be shuttled back and forth between innumerable forming, welding, heat treating and machining operations because of the temperamental behavior of the alloys used.

It is often necessary to modify design of a product in production to meet ever-changing developments in aerodynamics and metallurgy. Production runs are relatively limited in the aircraft industry and the extent of a contract cannot be forecast into the future.

Flexible Layout Needed

Because of these factors, Ryan methods engineers must be flexible in their conception of plant layout and must provide parts handling methods which are streamlined to meet each type of fabrication. Methods utilizing: stock boxes and pallets; mobile dollies and special racks; conveyors on floor tracks; roller con-



IMPROVED SPACE UTILIZATION

Continued

veyors and monorails; powered conveyor systems are employed to convey parts between production stations. Special loading devices are devised as required to load and unload parts into and from machines.

Three Basic Questions

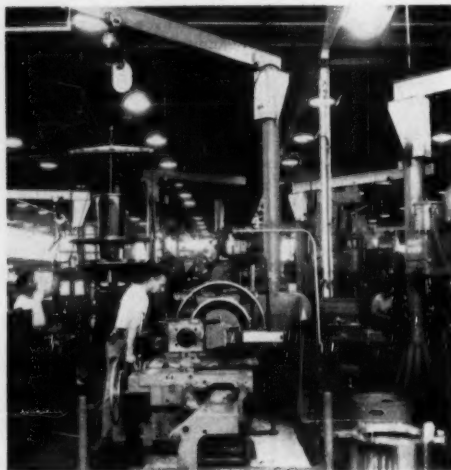
In reaching for the maximum dollar return per square foot of floor space, three basic questions, relative to each project, are considered:

1. Rate of production—how fast must the parts be made.
2. Production potential—what is the life expectancy of the program.
3. Type of product—what are the size, precision requirements or special features of the product.

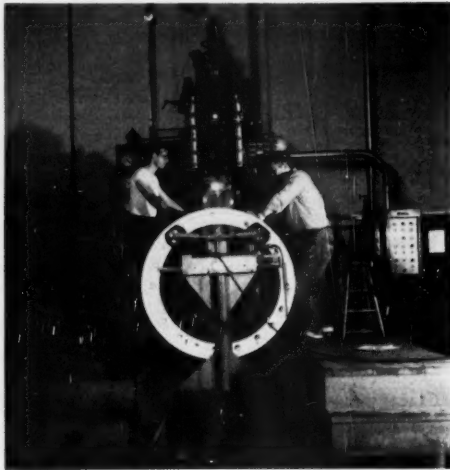
With the above data, three things are accomplished: First, a flow chart is made to determine the manufacturing sequence required; secondly, the type of facilities needed is determined; finally, a determination is made as to the number of facilities and the layout. A final recommendation accompanied by cost estimates is submitted to top management for approval. Usually, one or two alternate proposals are also submitted.

The aim at Ryan is generally one of trying to "make cubic feet out of square feet." Floor space is tight, but there is plenty of overhead space because buildings have clearances running from 18 to 30 ft. In planning, a layout is first confined to minimum floor space, then it goes up. It has been found, however,

BELT CONVEYOR brings thousands of parts for tank engines to workers. Especially designed to meet requirements of this operation, the 140-ft. conveyor has saved 40% of space and speeded production.



AIR-OPERATED HOISTS are used at Ryan for loading and unloading machines. Dozens of these devices are spotted throughout the plant to save time and manpower, and permit maximum utilization of floor space.



STEEL TRACKS and special holding fixtures for tank sections insure correct positioning during long spot welding runs between the machine's electrode "jaws". Space formerly required for turn-around etc. is cut.

that it costs more to go up than to spread out, and a constant attempt is made to balance the extra cost against the premium on floor space.

The feeling at Ryan is that the key to the development of efficient parts handling systems is volume. The fascinating possibilities gleaned from conveyORIZED lines and automation can be realized only if parts volume is sufficient to justify the higher costs of these methods. In each segment of Ryan production, the parts handling system is tuned to the economic factors governing the project and, consequently, the techniques are quite varied.

Straight-Line Flow

Ryan builds thousands of exhaust systems for the engines of General Patton tanks along a straight-flow production line which is fed with a 140 ft. powered conveyor belt. Because of the high parts volume, it is possible to use this method of parts handling and save 40% of the space otherwise required. Also, production has been approximately doubled and a cost reduction of about 25% in the price of the product has resulted.

All of the production machines can be spaced close together along the flanks of the belt line. Personnel fatigue is lessened since employees are relieved from carrying parts and can devote their efforts to the production tasks.

Converging Flow

To meet stepped up demands of the Pratt & Whitney Aircraft exhaust systems project, required a somewhat different approach. Each exhaust system for the Wasp Major engine is composed of seven large, stainless steel sections which are slightly different in

design but similar in appearance. They are too big to be picked up and handled easily. A basic problem was the difficulty in differentiating between the similar sections and maintaining a balance of production so that complete engine sets would come off the production lines for shipment.

By use of a tailored layout, Ryan has increased the volume of this work, improved employee morale, enhanced parts quality and saved fifty percent of the space otherwise required.

Use of Tracks and Fixtures

In the fabrication of external fuel tanks, tracks and mobile fixtures have been put to advantageous use. It takes four men to lift the sections of these tanks and more than 30,000 spot welds are used to join them together. The handling system is designed to save manpower and space in bringing the containers to the big spot welding machines and positioning them during the welding process.

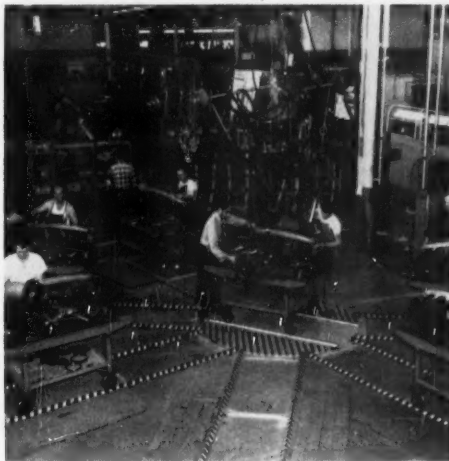
From the center of the factory, individual sets of tracks were laid to each of the eight spot welders. By means of overhead electric hoists, the heavy tank sections are loaded on special wheeled fixtures which travel on the tracks. Designed to bring the tank seams into the electrode "jaws" at the correct height, these fixtures are rolled to the machines. The tanks are free to rotate on rollers as welding takes place. At the rear end of the fixtures, a Ryan-devised hydraulic cylinder actuates the tank alignment. By means of a hand lever, the machine operator can control tank alignment so that straight seam welds may be made over tapered tank sections.

The layout has saved both direct and indirect man-

(Continued on page 114)



OVERHEAD CONVEYORS, installed in jet building where combustion chambers and transition liners for General Electric jet engines are built, has reduced space requirements from 9000 sq. ft. to 3456 sq. ft.



TURN TABLE is fed by tracked fixtures in the production of exhaust engines. Table revolves the manifolds under suspended spot welding "guns". This tailored system has resulted in a 50% saving in floor space.



Scheduled Yard Handling



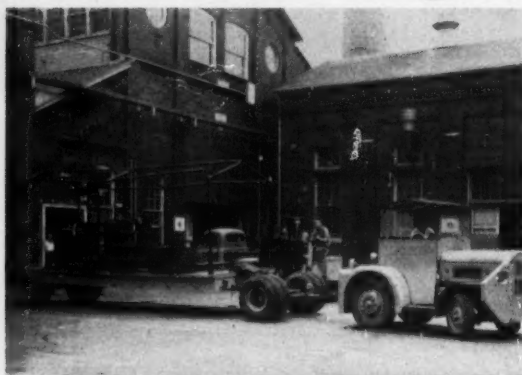
moves 5 times more material



cuts handling time
48 man hours per day



ups distribution efficiency 40%



THE "TRAIN" with tractor "engine" leaves warehouse area with parts and materials on time-table run to deliver load to production shop. Train cannot be late.

WHEN OUTSIDE STORAGE and handling comprise a major phase of plant operations, a system of scheduled deliveries—a rigidly maintained timetable—can keep handling in step with productive capacity, regardless of demand fluctuations that may occur. This principle applies whether the yard is large or small but is particularly effective if storage and production areas are scattered.

A practical application of scheduled material deliveries has been in effect at Thew Shovel Co., Lorain, Ohio, long enough now for an evaluation of its effectiveness. Used in conjunction with the firm's incentive

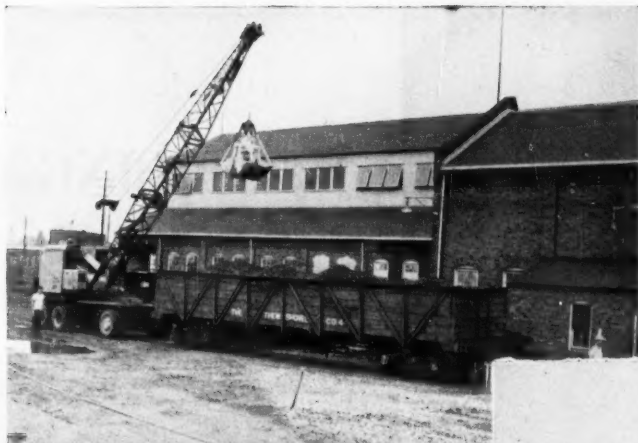
pay plan, the handling system has: (1) increased by five times the amount of material previously handled; (2) saved 48 man-hours per day; and (3) increased by 40 percent the efficiency of men working in key distribution points.

Nucleus of the system is a tractor-trailer train which operates on a punctual schedule between "stations" (storage areas and plant receiving areas). Train "engines" are either a 15 or 20 ton crane, or a tractor, all of which are rubber-tired. Each is equipped with easily operated hitches for fast coupling and uncoupling. Heavy duty trailers with capacities to 15 tons carry the loads.

Large items such as structural steel pieces are loaded by the crane-trains themselves. Others are loaded by fork trucks and overhead cranes where available. With this train equipment and with 24 hours lead time, definite and regularly scheduled routes have been developed for "trains" to follow. Except in rare emergencies, no individual pieces are delivered. Everything moves by the "trainload".

Control of the operation is in a central department, or dispatch office, which receives all requests for material needed by the production departments. Dispatch tickets are originated by a schedule clerk. Every two hours these tickets are forwarded to the central office. The ticket serves as a requisition, a shortage slip, authority to move the material, and a stock control record.

The stock division must have 24 hours lead time to deliver materials to the various departments. This



UNIT OPERATION functions when "special train" of crane (with clamshell) pushes car load of coal to powerhouse, then unloads it.

FLEXIBILITY in scheduling of all yard handling jobs, including scrap loading, as shown, is provided by full central office control.

calls for careful planning and integration between manufacturing and stock control.

Chief Dispatcher Starts the Job

When the ticket reaches the chief dispatcher, the material handling job starts. Since all storage facilities are provided with a positive space assignment, dispatch tickets are given to stock handlers in appropriate areas.

For loading trailers by crane, the system employs a "flag man". This man works ahead of the crane crew, counts the number of bars of steel, number of castings, etc., and places a green flag under the last piece in the quantity to be moved. Then, when the crane crew comes along, it secures the "unit" load by chain or hook, loads the material onto the trailer and moves on to the next lift. One flag-man serves two train crews.

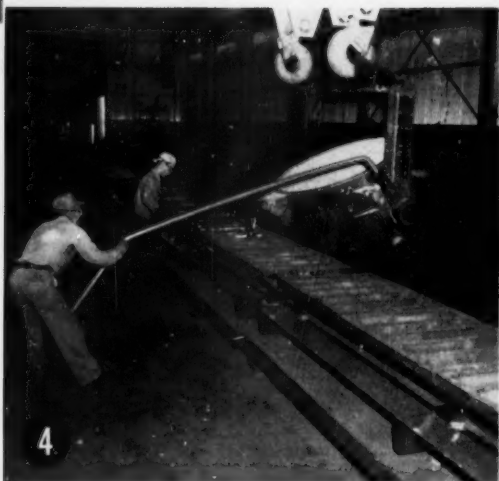
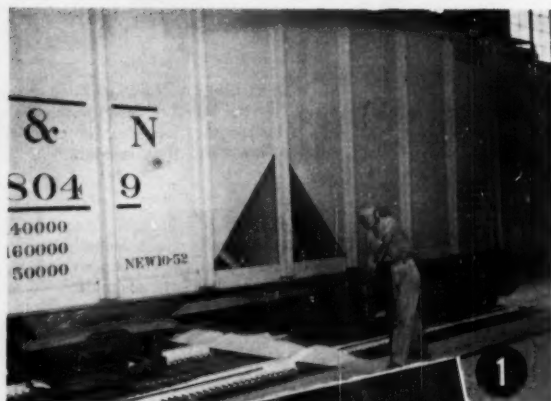
(Continued on page 117)



FLAG MAN works ahead of crane crew, counts amount of material to be picked up, and places green flag under last item to be moved in unit load fixed for 2 crane crews.



ORDERED twenty four hours earlier, load of bar stock is made up for machine shop. There it will be unloaded within 2 hours and payload readied for next pick-up.



HANDLING for

1. ALUMINA drops from covered hopper cars onto screw conveyors beneath grating.

2. BELT CONVEYORS are used to transport the alumina to overhead storage tanks.

3. FRONT-END LOADERS are ideal for adding auxiliary materials in potrooms.

4. OVERHEAD CRANES, one to each of 20 potrooms, carry molten metal in crucibles from the pots to mounds for pouring.

5. MOBILE CRANE loads aluminum pigs onto 1500-ton barge for shipment to fabricating plants throughout country.

6. and 7. FORK TRUCKS and DEMOUNTABLE BODY TRUCKS are used throughout the plant for a variety of handling jobs.

efficient flow of BULK MATERIALS

THERE is almost no type of material handling task which cannot be found in primary metal producing plants. Bulk raw materials, scrap, molten metal, pigs, and a multitude of other types of materials which must be transported make it necessary that a great variety of material handling devices be utilized.

At the Point Comfort Works of the Aluminum Co. of America, a variety of conveyors, several types of industrial trucks, overhead cranes, mobile cranes, and trucks with demountable dumping bodies all are used advantageously.

The plant receives alumina, a fine flour-like material from the company's smelter at Mobile, Alabama, in special alumina railroad cars. It transforms this material into aluminum pigs through a process requiring natural gas engines which generate electricity for the potrooms where the alumina is melted and reduced to molten aluminum.

When the alumina comes in by covered hopper cars, it is unloaded by gravity onto screw conveyors located

(Continued on page 108)



If departments or plants are widely separated, materials can still be moved among them efficiently, as shown in these examples of . . .

Continuous Handling Between

DISTANCES and streets are no longer barriers to efficient material handling. Inconvenience and delays which formerly snarled the transportation of materials and parts between widely scattered plants—or among buildings within plant areas—are being reduced constantly.

This aspect of material handling has been of acute interest to many companies faced with the need to expand production facilities. A fortunate—and relatively few—companies have been able to add to an existing building or construct a completely new one, and so firms have either built or acquired additional plant facilities on adjacent or distant sites. It has been the primary responsibility of material handling people and equipment to solve the problem of efficient material flow over these extended distances.

Some examples of how this has been accomplished

are shown in this first section, which deals largely with conveyORIZED systems. In a later issue, examples of handling between plants via industrial vehicles will be discussed. Both sections are intended to show principles which can be adopted by firms having any appreciable amount of repetitive travel between distant points.

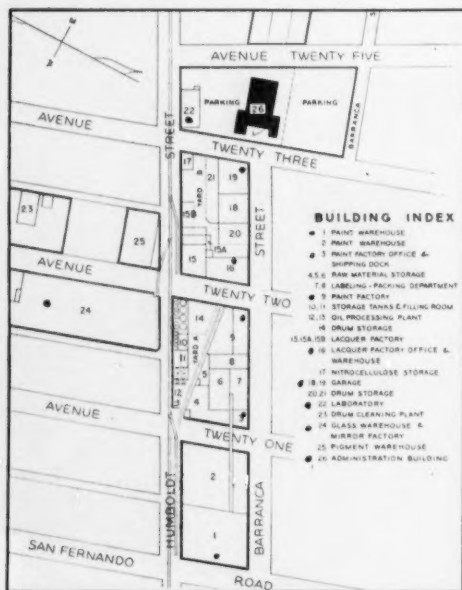
Among conveyor types shown are pneumatic, belt, overhead chain and cable, roller, slat and a modified type of floor conveyor using small trucks.

Pneumatics for Fast Handling of Papers and Small Items

One of the most complex problems for the handling of papers, paint samples and other small items has been solved by pneumatic tubes for the sprawling Los Angeles plant of W. P. Fuller & Company. Buildings, covering an area of nearly ten acres, are adjacent to six city streets. Pneumatic tubes connect the administration building with all primary operating departments. Eight substations or terminals plus one central and one sub-central desk are used in routing carriers over the linking lines, some of which are as long as 1350 feet. Three of the four streets which separate stations are crossed by underground tube lines, while a connecting bridge is utilized to run a tube across the fourth. Both 2 1/4 and 3 inch tube sizes are employed, and the number of carriers handled varies from a low of five per minute to peak loads of about 15 during rush periods.

In a number of installations in metals industries, pneumatic tubes are speeding the delivery of samples for laboratory analyses and tests, thus eliminating the need for human messengers. At Rotary Electric Steel Co., Detroit, small ladle tests, which are quite hot, and slag samples, which are red hot, are sent by special containers through pneumatic tubes from the melt shop to the chemical laboratory. The tube system runs from a high platform near the furnaces, out the side of the melt shop building, across the yard a distance of about 1000 feet, and terminates directly in the lab.

An installation of similar length handles samples of each heat from casting shop to distant laboratory and returns reports at the Scovill Manufacturing Company, Waterbury, Conn. Speed is of extra importance here, for only when the analysis report is returned—and meets specifications—is the billet or bar released from the casting shop to the mill. The system handles from 100 to 200 trips per day.

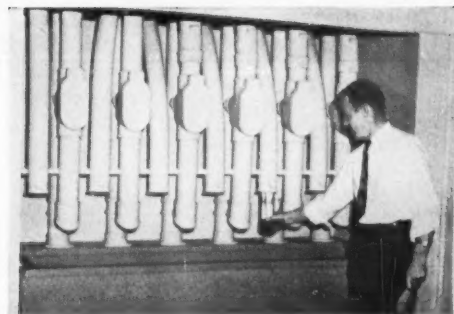


SPRAWLING plant handles samples, reports and correspondence among buildings by pneumatic tube. Dots show receiving and discharge stations. Three streets are crossed underground, a fourth by bridge.

Buildings

Quality control as well as much of the company's paper work is handled via pneumatic tube at Capital City Products Co., producers of edible oil products in Columbus, Ohio. When this firm completed a new central office building—on a different street from that of the main factory—it instituted a messenger service to make hourly trips to each department. Weather conditions plus emergency and other interruptions of the regular routine made this unsatisfactory. Also, employees in some departments made emergency trips themselves when it was impossible to locate a messenger or one was otherwise engaged. A pneumatic handling system not only overcame these difficulties but also produced other desirable advantages.

In the main office building, a station in the central mail room on the first floor connects with the billing department on the second floor. This department also has connections with the production office (on the other street) and the shipping department. The central desk in the production department is also directly connected with other plant departments. This gives the general office complete contact with the production building and, in addition, speeds departure of outgoing shipments, most of which are by truck. In the past, drivers had to await the arrival of the messenger bringing freight bills, bills of lading, invoices, and the like. Irregularity of the messenger system caused



CONNECTED to all departments as well as main office on another street, central desk of Capital City Products (above) controls production flow. Lab (below) connects directly with processing area to receive samples.



some annoying and costly jams around the loading platform. Now, the continuous handling of paper work allows trucks to be released, in most cases, as rapidly as they are loaded.

For the handling of samples and reports in production control, a direct twin line runs between the labo-

(More on next page)



HOT SAMPLES are sent from steel mill melt shop (left) to chemical laboratory (right) in special containers which travel via pneumatic tube suspended between buildings of Rotary Electric Steel Co.



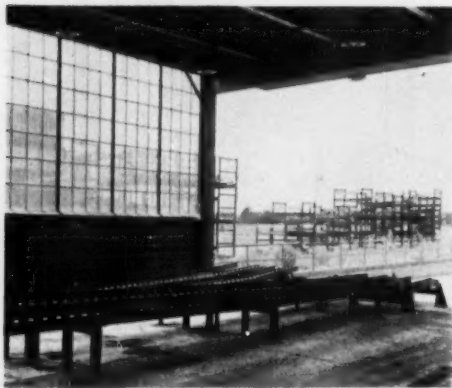
CONTINUOUS HANDLING BETWEEN BUILDINGS

Continued

ratory and the processing area. Oil samples are frequently dispatched and reports quickly returned.

Roller Conveyors (and Trucks) For Long Distance Moves

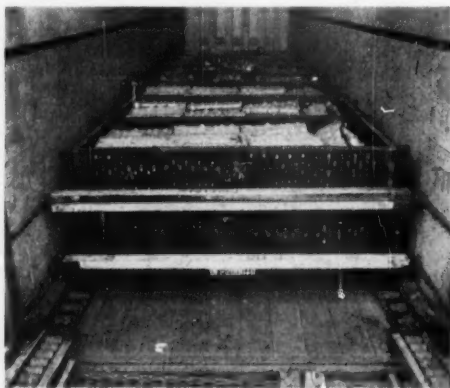
Material handling engineers of Ford Motor Company have just completed a conveyORIZED unit-load handling system that has possibilities for application and adaptation in many long-distance handling operations. It simplifies and speeds the movement of parts carried by highway trucks to Ford's greater Detroit area manufacturing plants. Equipment includes standardized pallet boxes, skid bins, and racks, gravity roller conveyors, and load-securing bars for trucks.



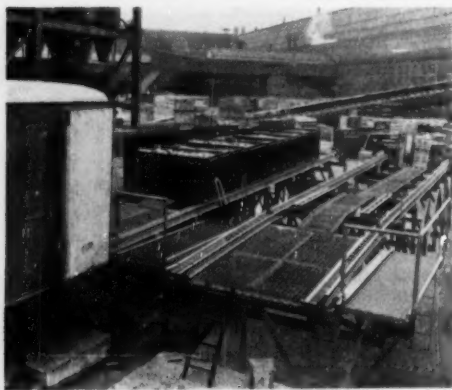
CONVEYORIZED docks which synchronize with conveyORIZED trucks handle racks (shown outside). Slope is toward exit for shipping, reversed for receiving.

At each shipping and receiving point there has been constructed two platforms on which two sections of roller conveyor are mounted like rails. These are properly spaced to fit the runners of containers and racks. One of these conveyors slopes downward to carry outgoing shipments; the other has a reverse slope for unloading trucks. Both conveyors have counter-balanced hinged portions which adjust to the height of truck floors. When inside installations of these automatic loading docks are not feasible, they are erected outdoors.

Matching conveyor strips are installed in trucks. Approach ramps are established to put the trailer at the proper angle to receive or discharge the load.



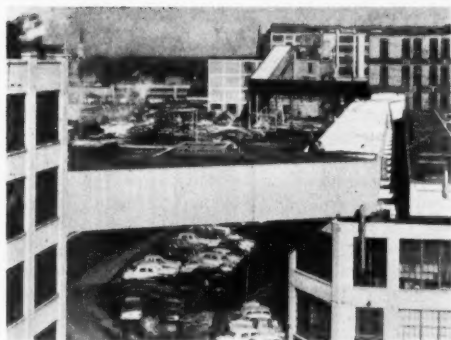
CONNECTION of dock and truck conveyors shown at bottom of picture. Heavy unit loads in standard containers are held in truck by adjustable horizontal bars.



OUTSIDE installation used where dock not available. Delivered loads are picked up when fork truck available, outgoing material accumulated for highway trucks.



UNIT LOAD being assembled can weigh to 35,000 lbs. Sections of both shipping & receiving conveyors are hinged & counterbalanced to adjust to floor heights.



LONGEST view of Studebaker conveyor shows turns and elevations of housing, how conveyor goes through 3rd floor level of Salvage building (right background).

Formerly, by loose-loading methods, from 45 minutes to an hour and a half were required to unload a trailer. With this new system, a load of 35,000 pounds can be backed into an unloading station, unloaded, moved to a loading station, and reloaded in approximately 12 minutes.

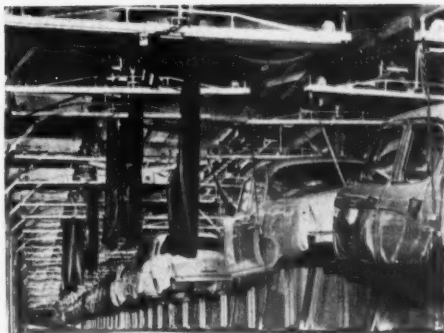
Advantages to this system, which Ford engineers say more than compensate for the cost of the installation, are:

1. The entire truck load is handled as a unit both during loading and unloading.
2. The number of highway trailers required has been reduced as all movements are scheduled, and trailers are not held up for lengthy periods of loading or unloading.
3. Fork trucks are not tied up during loading or unloading operations; stations can be loaded or unloaded at any time.
4. Personnel fatigue and safety hazards are reduced.

Long Overhead Conveyor Lines Available

The industry which probably has had a plant expansion problem of the greatest magnitude, the automotive, has used many lengthy, shed-enclosed conveyors for handling between buildings. The longest of these is claimed for the Studebaker South Bend plant.

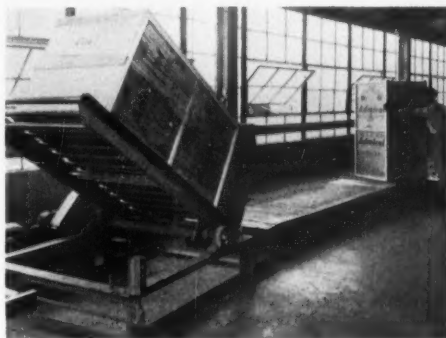
It goes between, through, around and over buildings to carry parts and bodies over a mile. The line starts at the sixth floor of the body plant, crosses a public street at the third floor level, and goes through seven buildings from the north edge of the manufacturing area to final assembly at the south. This is a one-way distance of 2,055 feet, but a longer distance is required on the return trip in order to pick up parts destined for the body plant. Outdoor sections are fully enclosed, constructed of galvanized metal decking over steel framework. A walk-way inside provides access for maintenance and repair. The enclosure is heated at all points where the conveyor enters or leaves a build-



HALF-MILE TRIP starts as bodies leave for Final Assembly line. Return trip is longer as conveyor takes more circuitous route to pick up fenders & other parts.

ing. This installation has replaced the large number of highway truck carriers which formerly transported bodies between buildings.

(More on next page)

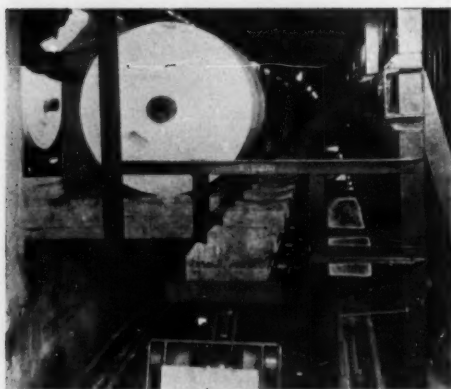


LOWERED on its back by "L" shaped conveyor, boxed refrigerator prepared for travel on 190 ft. belt in bridge over railroad track (below) to shipping building.



CONTINUOUS HANDLING BETWEEN BUILDINGS

Continued



CHAIN CONVEYOR with 4-wheel dolly-type carriers handles 750-lb. rolls of cloth from Bleachery to Printing Building, over changes in elevation and direction.



BULK-HANDLING BELTS travel between processing departments. Unit above, at paper mill, runs from chip storage to conveyor transfer building 237 feet distant. Installation below is in a slag processing plant.



However, practical use of these long installations has certainly not been limited to the automotive industry. Similar set-ups, in varying lengths, have provided continuous flow between distant buildings for many other types of firms. And overhead conveyors are not the only types which can be employed to carry large loads continuously. There are slat, roller, wheel and other types of conveyors in use to carry all sorts of loads for considerable distances between buildings.

Handling Heavy Rolls

At Southern Bleacheries and Print Works, Inc., Greenville, South Carolina, various plants mercerize, sanforize textiles and print piece goods. To handle 750 pound rolls of white cloth from the Bleachery to the Printing Building, an 800 foot long continuous conveyor is employed. It is an adaptation of the single-strand drag chain conveyor principle, which can be used to carry all kinds of heavy or bulky loads. Carriers are individual dollies of four-wheel type with V wood blocks to cradle the big cloth rolls. In the trip between buildings a change of elevation and a 90 degree turn are required as the conveyor runs beneath a ramp and long platform connecting them. The illustration shows the loading position at the Bleachery.

Long Belts for Inter-Building Handling

Although not yet as familiar in manufacturing applications as in quarry and mine installations, long belt conveyors are used efficiently for handling between

(Continued on page 116)

WOOD SLAT CONVEYOR below handles automotive accessories, cartoned goods, other miscellaneous shapes between buildings and levels in oil company distribution warehouse.





METAL TOTE BOX (left) receives drive pins as they leave automatic screw heading machine. Filled boxes are palletized (below) and moved about the plant with hand operated pallet trucks. Inspections are made while the drive pins are stacked.

Palletized Parts Handling



Wooden pallets, metal tote boxes and manually powered pallet trucks have been combined at Powder Tool Corp. to provide an efficient, neat handling method for small parts such as drive pins.

A 25% saving in handling time, a neater looking plant, and more easily controlled operations were all results of a revised handling set-up at Powder Tool Corp., Portland, Oregon.

Equipment involved in the new operations includes: approximately 1200 metal tote boxes; wooden pallets for use in storing and moving the tote boxes anywhere in the plant; manually powered pallet trucks.

The company manufactures powder operated fastening devices. The new handling procedure was revised for carrying drive pins, the fasteners used with the firm's products. Similar in appearance and weight to bolts, the pins range in size from one to four inches in length and $\frac{1}{4}$ " to $\frac{1}{2}$ " in diameter. Made from high alloy steel, they are relatively heavy.

Formerly, cardboard boxes were used to transport the pins from their initial operation through the various stages of finishing and packaging. Product identification was difficult and slow. Breakage of the containers was a constant threat as they became oil soaked and battle weary.

As the drive-pins emerge from their first operation . . . an automatic screw heading machine . . . they drop into one of the metal tote boxes. After being filled, each box is removed from the machine and stacked to await the next operation. Meanwhile, the first of several inspections is performed. The open-end construction of the tote boxes greatly facilitates this task. With the old method, stacked boxes would have to be removed one-by-one to permit inspection.

Skid loads of boxes containing drive-pins move through subsequent phases of manufacture . . . pointing, thread rolling, knurling, heat treating, plating, final assembly, and on to packaging. Between each process, inspections of the stacked boxes of product are made.

After pins have been removed from the tote boxes for packaging, the boxes are nested together and stacked on pallets to be returned to the starting point for another circular tour of the plant.

Courtesy Charles Wm. Doepke Mfg. Co.

COST CUTTING IDEAS . . .



FOR TIGHT BATTERY FITS

An ingenious storage battery lifting device to effect quick battery changes is being used at New York City's Grand Central Terminal. Pick-up element of the device is a large steel yoke-hook welded from simple structural shapes and carried by a monorail hoist. When removing a battery from its compartment, in a baggage carrier, the bottom yoke-hook is slid into the compartment under the battery. A rectangular centering plate on the bottom of the battery fits into a recess in a plate welded between the two arms of the yoke-hook and acts as a safety device to prevent the battery from shifting position during handling.



SPEEDIER PACKAGING

At Prentice Hall Inc., honeycomb buffers have greatly speeded up the packaging of books into corrugated boxes. The buffer consists of kraft paper shaped in the form of a honeycomb and faced on one side with kraft liner board. Heretofore, the packer cut off a length of single face corrugated board, folded it three thicknesses and then placed it in the box. The new honeycomb material eliminates both the cutting and folding operations. Cut to predetermined length, the buffer fits the publishers ten different box sizes. After books and honeycomb buffers have been packed, high speed stapler closes boxes.

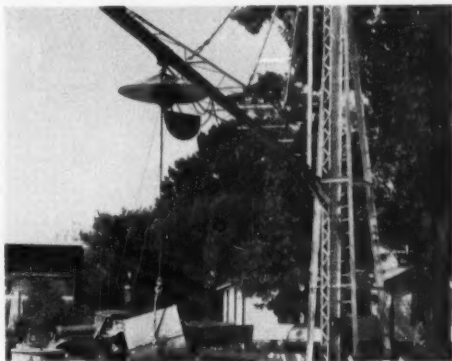


FASTER ELEVATOR HANDLING

Roller-track sections installed at each of seven elevator landings at Stewart-Warner Corp., have resulted in unusually high speed moving of pallet-loaded automotive instruments and Alemite parts between floors each day. To move a pallet load of materials from one floor to another, a fork-truck operator carries it to the elevator landing, sets it down on the track outside the elevator and then goes for another load. When the elevator stops, the attendant pulls the waiting pallet onto a roller conveyor in the elevator, carries it to the correct floor, and pushes it off the elevator and onto another conveyor track.

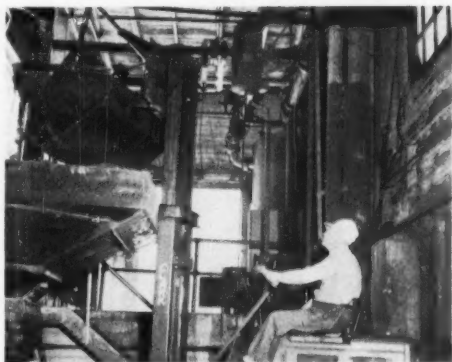
ONE-MAN HANDLING OF BULKY ITEMS

In many small businesses, especially one-man operations, moving heavy or bulky objects can take up much valuable time. C. E. Sheets, of Clemmons, N. C. was faced with just such a problem, and he came up with a device which lifts and carries his concrete pipe perfectly. (It can do the same for anyone handling items from blocks to marble slabs with equal ease.) Sheets erected a 25 ft. jib crane which could swing horizontally through $\frac{3}{4}$ of a circle. On it he mounted a one-ton trolley-type hoist with a fabricated hood over it for weather protection. Loads can be hoisted and carried anywhere in a 1500 sq. ft. area by one man.



FORK TRUCK FURNACE STOKING

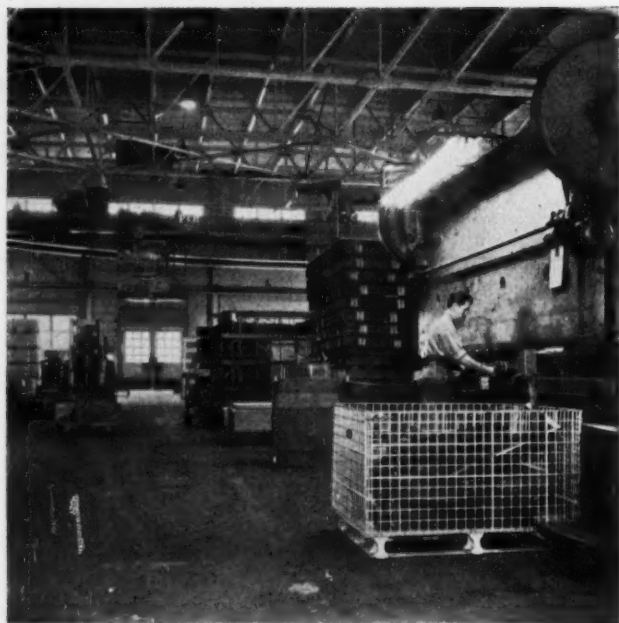
Savings of approximately \$100 per week, in the stoking and maintenance of furnaces have been effected at Union Steel Products Co., through the use of a fork truck with a shovel attachment. The truck is a 4000-lb. capacity, pneumatic-tire fork-lift, and it has been equipped with a 15 cu. ft. shovel attachment. The unit is used for the sole purpose of transporting coal from an outside storage area to the furnaces for stoking. One man on each shift handles the entire operation with ease, and the truck is in use 24 hrs. per day, indoors and out, using chains in bad weather. It maneuvers well in the cramped boiler room.



HERE'S HOW TO SHIP A HOT INGOT

Heppenstall Co. must ship ingots and billets between its New Brighton, Pa. plant and its Pittsburgh plant, 30 miles distant. To eliminate a time delay of many days for cooling before shipment and re-heating at the receiving plant, boxes made of reinforced asbestos sandwiched in low gauge sheet metal were devised. Now, ingots are shipped as they are stripped from molds at approximately 1300° or 1400° F, and they only lose about 200° F of their heat in transit. Instead of the more than 10-day delay caused by the old method, it is now possible to begin subsequent forging operations within eight hours.



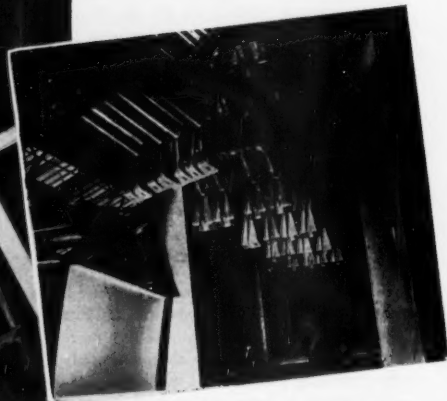


When Handling

RAW MATERIAL (sheet and coil steel) starts its way through the press shop in a high-ceilinged bay. (left). Radio controlled fork truck in aisle is one of fleet which roams the plant on special assignments.



AFTER WELDING, table frames leave welding booth and are placed immediately on an overhead chain conveyor that circles entire press shop. Frames are taken in sequence through washing, drying, painting and baking to assembly, packing and shipping.



ENTERING PAINT SPRAY BOOTH, pressed steel frames get a steady stream of paint from all angles producing a heavy, uniform coat on the finished product. After painting, coated frames continue on chain conveyor to baking oven.

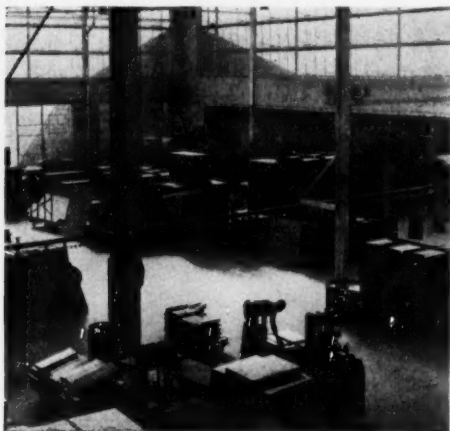
Is Obstructed . . .

Knock Down Some Walls!!!

That's exactly what Standard Pressed Steel Co. did recently when it carried out a plan to expand its facilities. Only those old walls which fit into the new design were left standing. All others came down to help achieve straight-through, unobstructed flow of materials.

NEW freedom in the planning of its material handling resulted for Standard Pressed Steel Co. after a recent plant expansion marked by a novel approach. In effect, SPS built a new plant in and around its existing structures, giving it, under one roof, 650,000 sq. ft. of floor space designed for streamlined product flow.

Old walls which had been restricting flow were knocked down, existing buildings which were still in good shape were integrated, and all new structures were tied into a single one-roof plant. The result . . .



ASSEMBLY AND PACKING AREA is serviced by the press shop chain conveyor. The conveyor also services a balcony assembly and storage area. This arrangement contrasts with old set-up where equipment was assembled, packed and shipped in cramped quarters.

a unified plant which provides: unrestricted areas which permit most efficient layout for all plant operations; an opportunity to make wide use of conveyorization; a new degree of freedom for the company's fleet of radio-controlled fork trucks; a new flexibility that will permit easy expansion of production departments in the future.

Straight-through Flow

The immediate advantage of the new plant has been the possibilities for straight-through flow . . . from receiving to shipping.

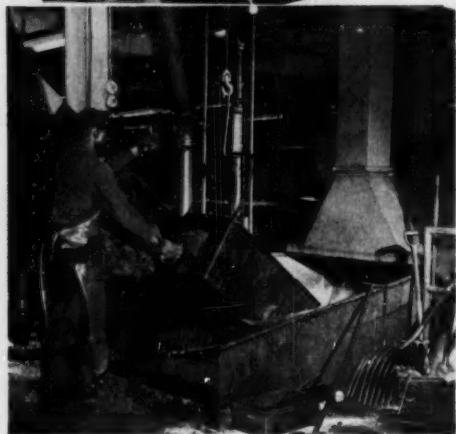
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MID PLANT RAIL SIDING is one of two shipping points for Hollowell steel shop equipment. It is serviced directly by overhead conveyor or from assembly and storage areas nearby. Second shipping outlet is main truck and rail loading platform at far end of plant.

Extremely flexible loading and unloading facilities helped the company take full advantage of this factor. A total of three rail sidings, (two of them new) gives complete mobility for entry of raw materials and exit of finished products. Materials enter the north side of the plant via a new mid-plant rail spur, or at the south side of the plant via a well planned rail and truck shipping platform large enough to double as a storage center and as a loading station.

An overhead network of belt and roller conveyors brings cases of nuts and screws to the platform directly from the packing station inside the plant. Heavier Hollowell steel shop equipment moves on skids via fork trucks to the platform. In the loading area a van load of orders can be made up on the floor right at the point of loading, then stored there till shipping time. This system permits shipping in large vans without tying them up any longer than the time needed for loading.



CHIP COLLECTION . . . Oily machine turnings begin journey through disposal system, (top), and are deposited into chip truck. Chips are dumped by overhead hoist into chip deck feeding crushing machine (bottom photo). Crusher pulverizes up to 50 tons of chips a day.

Knocking Out Walls Helps

The loading platform is equipped with 16 automatic hydraulic ramps protected by overhead roll-back doors. The all-weather station is completely enclosed and warmed.

In-Process Handling

In its redesigned press shop, SPS has been able to cut handling costs 75% with a concurrent increase in output of more than 50%. Maximum conveyor speed has been almost doubled (from 3 to 15 ft. per min.) so that potential capacity has been increased nearly 100%.

Press shop operations are now conducted under one roof, whereas it formerly was done in three buildings. Sheet and coil stock are taken in one side of the plant and finished shop equipment is delivered to the truck and rail loading platform at the opposite of the plant.

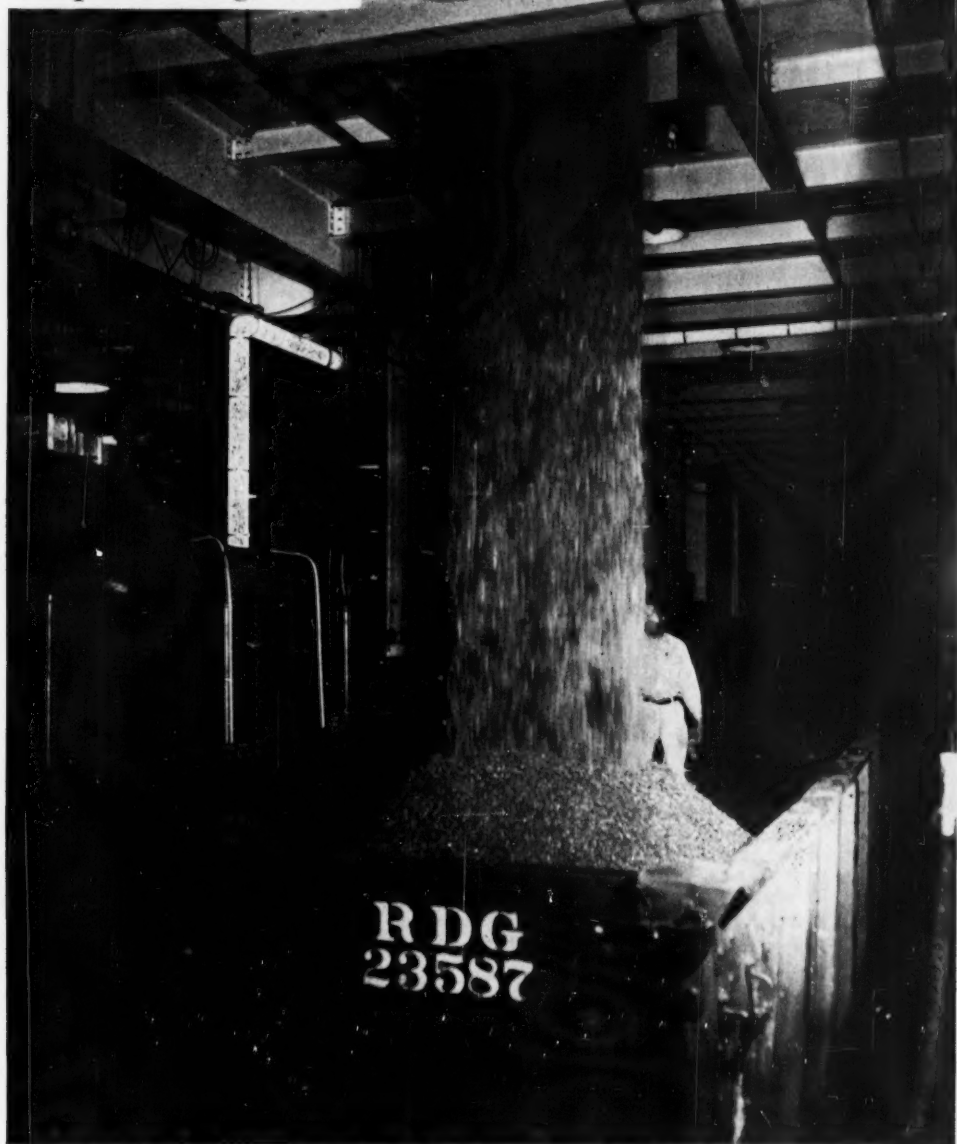
Steel arriving by truck and train flows smoothly in sequence through shearing, braking, and press operations before reaching the welding booths. Skidded steel shipments are handled by an overhead crane which services the entire length of the storage and

(Continued on page 109)



CENTRIFUGE spins pulverized chips at 3600 rpm in centrifuge at left to recover cutting oil. Then chips are removed and dumped into dry chip hopper under the floor. From this point, chips are blown into a car storage bin that sits over the in-plant rail siding.

Scrap Handling, Too

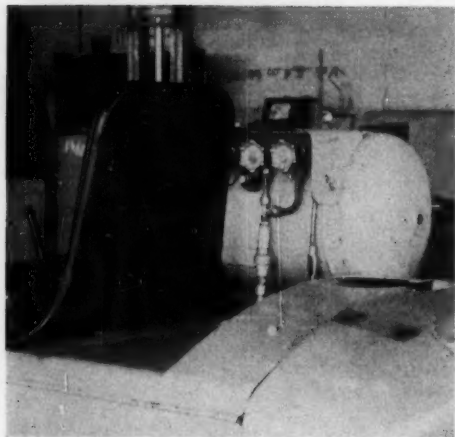


PROCESSED CHIPS pour into a waiting gondola from the overhead car storage bin. The bin is capable of storing up to 80 tons of chips at a single time, and can completely fill a gondola car in only 20 minutes. The old system of handling chips required a total of

six man-days to do the same task. Dry chips in this pulverized state are sold by Standard Pressed Steel Co. to steel mills for up to four dollars more per ton than otherwise. In addition, the new system permits the recovery of 15 to 20 per cent more oil from chips.

Properly Used, LP-Gas Can Power Your Industrial Trucks

by William H. Kramer, Jr.
Phillips Petroleum Company

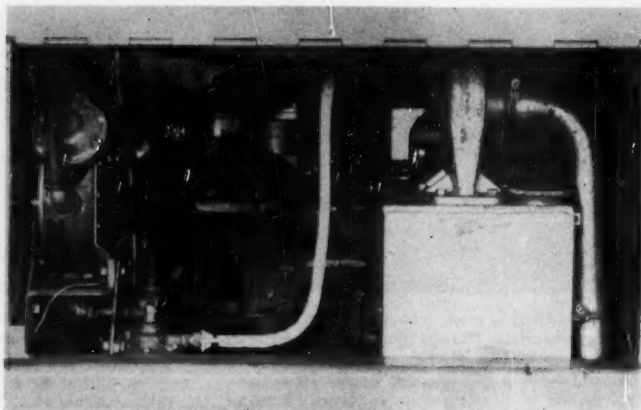


LP-GAS FUEL TANK (above) must be equipped with proper fittings designed for 250 psig, and approved by Underwriters Laboratories. Fittings include a safety valve, filler valve, liquid gauge, vapor valve and liquid valve. An engine which has been converted for LP-Gas is shown at right.

THE use of liquefied petroleum gas, or LP-Gas, as a motor fuel dates back to the early 1930's, and in recent years, more and more trucks and tractors are changing over to this fuel. Increased availability of this fuel has brought this trend about, particularly in the west and southwest.

Just what is liquefied petroleum gas? What advantage does it offer?

Briefly, liquefied petroleum gas in any material composed predominantly of any of the following hydrocarbons or mixtures of them: propane, propylene, butanes and butylenes. At normal atmospheric temperatures and pressures, these are gaseous, but are readily liquefied by the application of moderate pressures



for ease of handling. All LP-Gas is transported and stored in liquid form.

Of the various grades of LP-Gas on the market today, commercial propane should be specified for motor fuel use. Consequently, LP-Gas as discussed here will mean commercial propane with an approximate analysis of 95 percent propane and 5 percent propylene.

LP-Gases are produced from three different sources: natural gasoline plants, cycling plants and refineries. The potential availability of the gas is, and apparently will continue to be, in excess of demand. The chief source is the southwest, since this region holds our largest crude and gas reserves. Refinery LP-Gas in the eastern market is limited.

A typical natural gas contains about $2\frac{1}{2}$ gallons of LP-Gas per thousand cubic feet. LP-Gas from refineries may run about 10 percent of the crude charge, of which only 3 percent is available for LP-Gas sale, the balance being used for motor fuel, blending and other uses.

Characteristics of LP-Gas

Liquefied petroleum gas has physical and chemical properties differing widely from other fuels.

Vapor pressure is an important property. At 100°

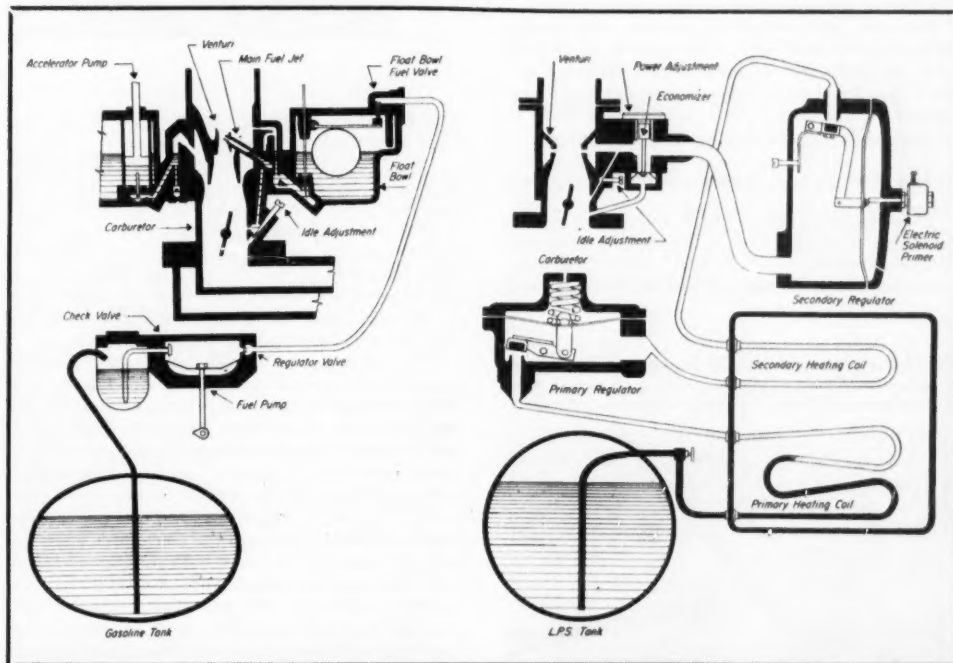
F., the vapor pressure of propane is 192 psig; at 0° F., the vapor pressure is 30 psig. Since propane boils at -51° F., no fuel pump is required in an LP-Gas engine because it supplies its own push. This vapor pressure at 100° F. is the reason for the 250-pound working pressure fuel tank and extra heavy accessories and fittings required on an LP-Gas fuel system.

In the gaseous state, LP-Gas, like gasoline, is heavier than air and care must be exercised that any accumulation of gas is dissipated by natural or mechanical ventilation. The gas is colorless and odorless, but an odorant is added by the supplier as a warning agent so any leaks may be detected.

In this liquid state, it has a relatively large coefficient of expansion. Upon heating, the volume of liquid LP-Gas will increase appreciably. For this reason, storage or fuel tanks are never filled liquid full. An expansion space must be provided above the liquid to permit expansion due to temperature rise.

The chief disadvantages of using LP-Gas as a motor fuel are its low specific gravity and low heat content per gallon. The gas weighs less than gasoline or diesel fuel, and so contains less BTU's per gallon. More specifically, propane has 27 percent less BTU's per gallon than gasoline.

(Continued on page 104)



TYPICAL CARBURETION of a gasoline system (left) is compared to that for LP-Gas. Both systems do the same job, by different means. A regulator in the LP-Gas system, comparable to a fuel pump, maintains a

constant out-put to the secondary regulator, equivalent to a float bowl. LP-Gas is vaporized by a converter, whereas gasoline is sprayed into the air stream and vaporized by heat from the manifold.

2-Way Radio Puts a Foreman in Every Truck

A MERICAN INDUSTRY is saving thousands of dollars this year—and will save millions of dollars in years to come—through the use of two-way radio communication to facilitate the transfer of materials within plant areas.

Two main purposes are accomplished: (1) materials handling vehicles are kept busy carrying payloads instead of wasting time deadheading; and (2) the central control or base station dispatcher, by constant contact with the vehicles, supervises and controls the transfer of material while it is being accomplished.

Since the installation of a two-way radio system to expedite the handling of materials within our plant area, we of the United States Metals Refining Company have found a whole new line of thinking on the subject of material handling, a consequent boost in production, and great savings in time and money.

Better Storage and Transportation Developed

The main part of the Carteret plant covers an area of approximately 85 acres of the total 185 acre site. Before our system was "radioized," most of the transportation of material was accomplished by both stand-

DISPATCHED BY RADIO, 25-ton crane arrived simultaneously with load of logs for refining process. Timing is right because dispatcher knows operations intimately.



Twice as much work can be accomplished when material handling vehicles are equipped for radio communications, says R. H. Graves, Assistant to the Vice President and Manager of U. S. Metal Refining Co., Carteret, N. J.

ard and narrow gauge railway facilities. We also suffered from inadequate storage room.

Departments received some of their supplies as they were unloaded by yard gangs. One car always required one day, regardless of the number of men in a gang or the material in the car.

Some supplies were stored in sheds and old buildings. New material, piled on top, was being used and old material was always underneath or in the back of the pile. Some was always wasted due to broken bags or containers and old age.

Then, as now, over 250,000 bricks were carried in inventory. These were stocked in piles on the floor in the brick shed. We could not palletize because the only transportation to and from the brick shed was by narrow gauge railroad platform car. Many bricks were broken because of excessive handling and obsolete bricks piled up over the years.

In 1951, the management of the company decided that some of the operating costs of the plant were way out of proportion. A considerable amount of money was allocated for modernizing to the end of lowering overall expenses. As part of the new program, a study was made of the comparative costs of transporting material within the plant by our existing narrow gauge railway facilities and by doing some of the same jobs with industrial trucks. We found that trucks were capable of handling the same amount of work as the narrow gauge railway equipment, were much cheaper

NO WASTE time here as deadheading is practically eliminated. When job is done, operator just calls, "What's next?"

←
CONSTANT CONTACT is maintained by dispatcher, who, by code, can keep telephone and radio going at same time.



to maintain, and had greater flexibility. Also, by using industrial trucks we could palletize most of the material we handle, and that would help us to make maximum use of our limited storage space. Operations would be speeded up by handling a unit load rather than individual units of material.

Consequently, a central storage method was decided on, with deliveries to be made to departments, as needed, by industrial trucks.

Revised Handling Required Better Communications

At first, we were operating two industrial trucks but having very mediocre results with them. The main trouble was that we never could locate them when they were needed. The foreman had to make many phone calls and do much running around the yard and plant to finally get trucks working on a project. As can readily be seen, we lacked a good system of communication.

It was then decided to test the advantages of two-way radio. A pilot system of a base station operated from a remote control console and five mobile units installed on materials handling vehicles and in my office (for use as either an emergency mobile unit or base station) was instituted to acquaint personnel of the plant with the new radio network. It was felt that

a smoother transition would be accomplished by starting the radio system small.

With the antenna mounted on the peak of a tall building, more than adequate radio coverage to all parts of the 185 acre plant site was supplied.

Need Grew with Experience

Although originally licensed to operate 15 mobile units by the Federal Communications Commission, we have since had to have our license changed to allow 40 mobile units. As we have become more familiar with how this new radio tool can assist us, more mobile units have been added. These include the two locomotives and the three diesel cranes of the standard gauge railroad equipment. Presently, plans are being studied for the application of radio to our narrow gauge railroad engines, bulk handling vehicles, bulldozers and company owned trucks and cars which travel outside the plant.

Dispatcher Knows Production Problems

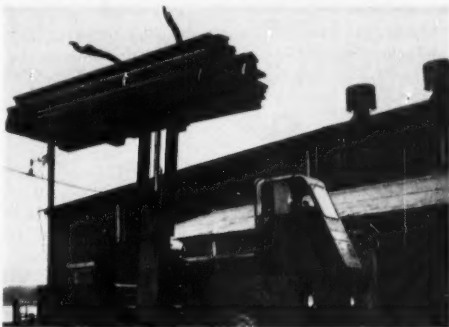
A remote control console for the base station is manned by a dispatcher who is a foreman with wide experience in all phases of the plant operations. A radio unit is also located in my office for keeping me informed of what is going on in the plant. Except in emergencies, the truck operators obey orders only from the dispatcher. The base station is located adjacent to the centralized storage building. An intercom between, with a loudspeaker in the centralized storage building, enables the dispatcher to give orders to the foreman in that building, also.

Handling Output Doubled

At a minimum, radio has doubled the output accomplished by each truck. Besides better control of the whole materials handling situation through sure, instant contact with the truck drivers, we have noticed a greater amount of productivity on the part of the truck drivers, themselves.

(Continued on page 98)


JUST LOADED, truck's destination is reported to "H.Q.", who will schedule return load. Use of this unit was "lost" from time of delivery to radio installation.



A Conveyor With

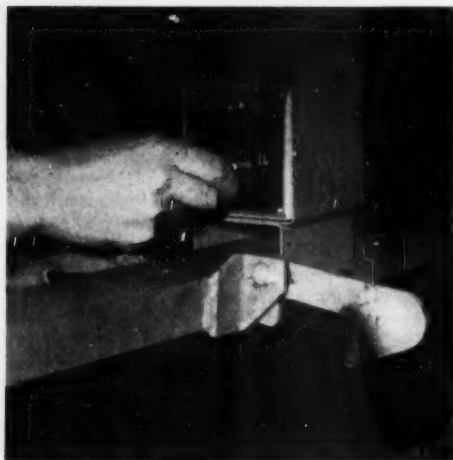
WHEN a plant outgrows its existing facilities, handling and storage problems multiply, and costs go soaring. This is especially true of plants located in older, multi-story buildings, and one company which solved its many growing-pain problems with a unique conveyor system is Stewart-Warner Corp., Chicago.

Briefly, the flow of materials at Stewart-Warner consisted essentially of removing work from various machine locations to scaling areas, where it was weighed. After the material was scaled, it was hauled to designated locations and, after completion of all operations, the greater portion of this material was sent to "Central Process Stores". There it was again weighed, by these stock rooms upon receipt. Finally,



MINIMUM SPACE is required by the conveyor, shown traveling through a narrow aisle. Additional space is saved by having the loops which connect the floors run inside a housing located outside the building.

"BRAINS" OF THE SYSTEM consist of selector switches like this. This particular carrier, already unloaded, is being set on "EC" (empty carrier). The carrier will thus be sent onto the main line, where it will travel until needed elsewhere. The carrier may also be sent to any given floor by setting the switch on the desired number. The toggle switch indicates to which part of the plant (north or south) the carrier will go.



"Brains" Cuts Inter-Floor Handling Costs

the material was delivered to the various assembly departments as required.

Not a complicated situation? Well, let's take a closer look at the handling methods and some of the other problems involved.

First of all, work was transported from the machines to the scaling areas by departmental trucks. Since these scaling areas frequently were located in aisles, or overflowed into aisles, serious congestion resulted, and good housekeeping was difficult to maintain.

Secondly, weighing of the material was duplicated. It was weighed in the scaling areas, and then later weighed again in the stock rooms after completion of all operations.

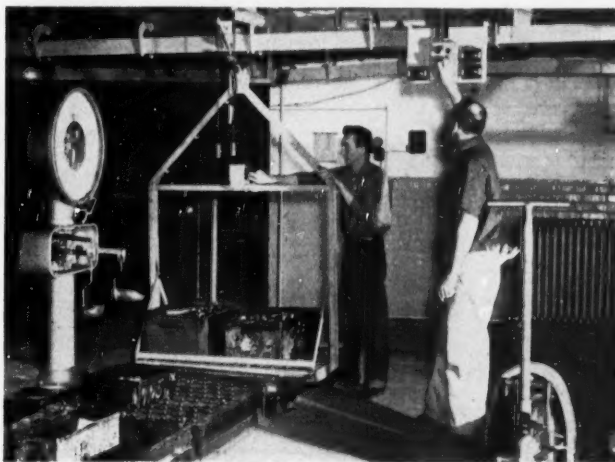
Finally—and this was the big bottleneck—six floors

were used for production, and various elevators were used when the movement of processed material was inter-floor. A considerable amount of excess cost was involved in waiting for elevators and handling less-than-capacity loads. Most of the elevators were installed at the time the building was constructed, and, at the time of installation, most material was moved by hand trucks.

Consequently, the elevators were never designed to withstand the stresses imposed by powered industrial trucks, and the rated capacity in most instances was insufficient to carry these trucks and their maximum loads. It became apparent that, were the company to continue its present method of handling processed

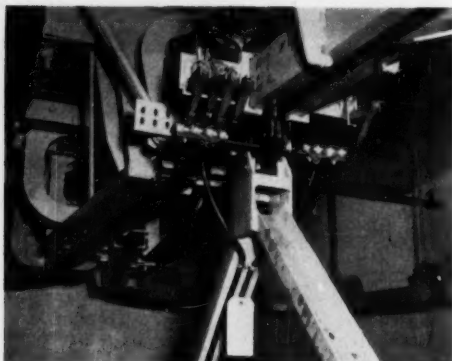
(More on next page)

STATION STOPS are located on each floor. Man at left is setting the selector switch which will send the loaded carrier to the next department. Worker at right pushes button which indicates a need for more empty carriers which will automatically be switched off the main line to this stop as they pass. Another button indicates a need for carriers with empty tote pans. They arrive automatically.

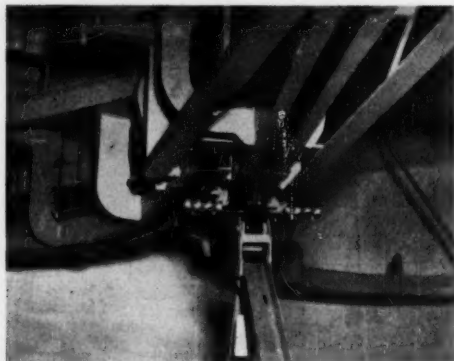


CONVEYOR WITH "BRAINS"

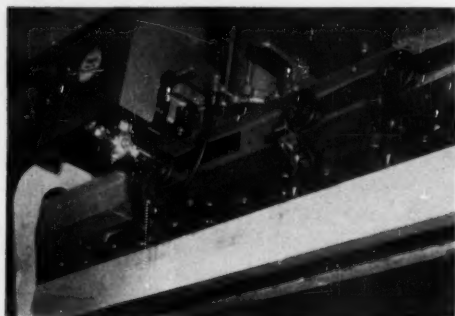
Continued



SIGNALS ARE RELAYED through these wipers to actuate the solenoid-controlled switches which send carriers from the main line to pre-designated stops.



THIS CARRIER has been switched from the main line to a station loop. After it enters the station loop, it will then automatically close the switch behind it.



material, the elevators would have to be modernized and their capacities increased.

However, the cost of such an undertaking probably would be disproportionate to any benefits derived. And, the necessity to modernize the company's vertical transportation system was emphasized when two of the elevators were subjected to study for repairs.

The Solution

Finally, after extensive study of possible solutions, it was decided that a single overhead conveyor system would eliminate most of the company's problems. Essentially, the conveyor is one continuous power and free track traveling up in loops in one section of the building, and down in loops in another. The power chains consist of four separate sections, each with its individual drive.

One chain carries the work from the first floor to the third. The second carries loads from the third floor to the fifth. The third carries loads from the fifth floor to the sixth floor and across the building. The fourth chain is under load from the sixth floor down to the fourth; the third chain carries loads from the fourth floor to the first and across the building to the beginning of slope up in the press shop.

The conveyor is designed to handle all inter-floor production in tote pans or pallet boxes. Power trucks on each floor transport the work from the department to the nearest conveyor loading station. There are 12 such loading stations, or free loops, two on each floor.

Each loading station or loop is provided with a section of gravity roller conveyor about 9 inches high, pitched to weighing scales. Truckers unload material to be carried to another floor on this section of roller conveyor.

Also, scales are provided at each loop to service several departments at a central location. All departments ship and receive inter-floor production material at their designated loops. Furthermore, with few exceptions, no production material is handled by elevator, and movements of truckers are limited to one end of the building and to one floor.

The scaler assigned to a particular loop simply transfers the pans of material from the roller conveyor to the scale for weighing or counting, then slides it on the conveyor carrier and sets a selector switch on the carrier to dispatch the load to the proper floor. A toggle switch on the carrier control box is used to select the proper loop on any designated floor.

To facilitate loading of pans on the carrier, a heavy-duty roller is fastened to the scale to carry one end

(Continued on page 111)

TROLLEY WHEEL LUBRICATOR automatically lubricates all wheels on the conveyor system while the unit is in operation. Each shot of lubricant is measured.



Towmotor "hits the spot" with a pallet load of syrup at plant of East Chicago (Indiana) Pepsi-Cola Co.



PALATABLE LOAD

Palletable or palatable—it makes no difference whether you're handling hard goods or soft drinks, Towmotor loads, unloads, stacks, stores, delivers, and ships more kinds of materials in more ways, more quickly, more economically, more easily. Towmotor makes your operations look better literally and figuratively.

You'll want Towmotor, with new Power Steering that increases driver stamina by reducing steering effort 80% . . . with the new "Cushioned Power" Diesels that deliver more power and save fuel costs . . . and with the many other Towmotor features that make Towmotor the best buy for your boss and best by far for you! Send today for free booklet, "What Makes It Tick?" TOWMOTOR CORPORATION, Div. 809, 1226 East 152nd Street, Cleveland 10, Ohio.



**FORK LIFT TRUCKS
AND TRACTORS**

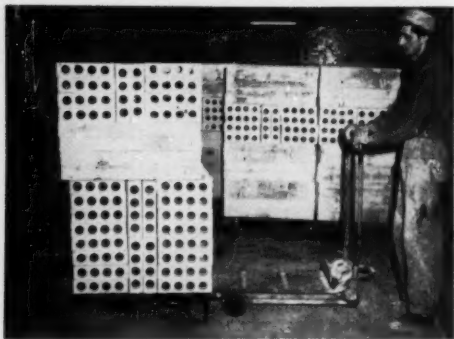
Since 1919

TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE

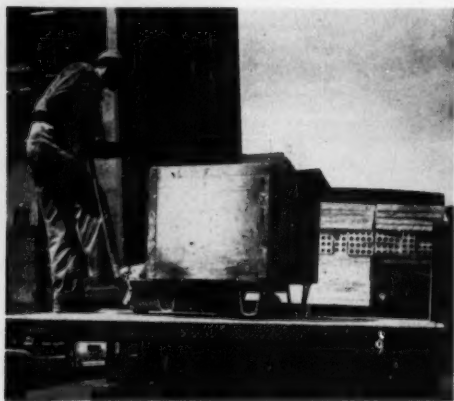
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FLOW • SEPTEMBER, 1953

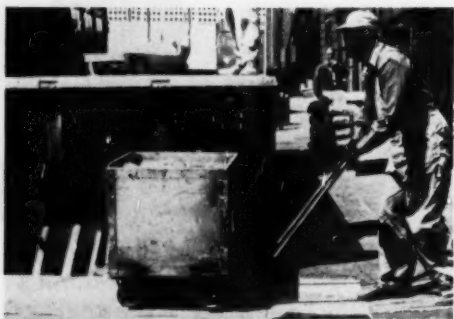
91



FORK TRUCK places skid load of building material on flat bed truck at suppliers yard. Driver prepares to move the skid into position with a hand lift truck.



HYDRAULIC TAIL GATE is used to lower skid load to ground. Here, truck driver is placing skid in position with the hand lift truck. While skid is being lowered, he will return onto bed of truck for another load.



HAND LIFT TRUCK is loaned to contractor by supply dealer for handling of material. Bridge plate connects tail gate with sidewalk. This method has not only cut handling cost drastically, but has eliminated damage.

Planned Handling

Increases Business

PLANNED handling by a building supply firm, Candee, Smith and Howland, has been directly responsible for a 300% increase in the volume of business in a seven month period. The phenomenal upsurge has been due largely to a unique service made possible through the ingenuity of the company's vice president, C. Irving Constantine.

An analysis of the material handling problems involved in the building supply industry revealed that just about everything was wrong with the accepted methods of delivering materials to a building site. Large sums of money were being lost by almost everyone in the industry due to bad handling practices.

Building material dealers lost money because materials were moved from the delivery point to the work area by clumsy, inefficient and time wasting methods. Breakage of materials was enormous, averaging thirty percent. Cluttered sidewalks endangered pedestrians and necessitated a clean-up job after materials were removed.

Equipment Used

To eliminate such problems at Candee, Smith and Howland, the following plan was evolved:

A 30" x 30" skid with a four-way entry and six inch underclearance was designed. This size was decided upon since it most nearly suited all products which were handled. The skid has a metal frame and a wooden deck, with 28" x 26" high sides made of weather-proof plywood bolted to the skids. This formed excellent and long lasting boxes for bulk material.

To move skids of this size, a light-weight, 1000 lb. capacity fork truck with rubber tired wheels was selected.

With this equipment on hand, here is the procedure as it was put into practice.

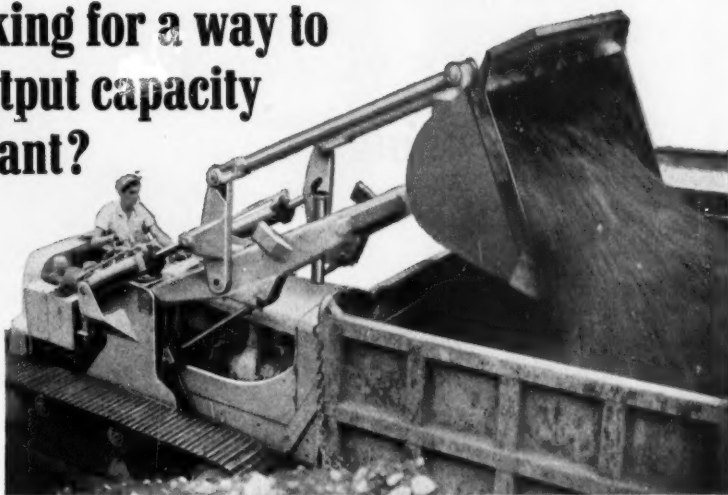
Building materials come to Candee, Smith and Howland from the manufacturer by freight car and trailer truck. Some material is loose, some skidded and some palletized. The materials are deposited in the yard or warehouse.

(Continued on page 115)

MR. PRODUCTION MANAGER:

**are you looking for a way to
feed more output capacity
into your plant?**

This Allis-Chalmers HD-9G Tractor Shovel might well be the answer. It offers the same outstanding versatility and performing ability as the 1-yd. HD-5G—the recognized standard of comparison—plus bigger capacity, higher reach and more power. With the HD-9G, one man can move more material per shift . . . handle a wider variety of jobs inside and out.

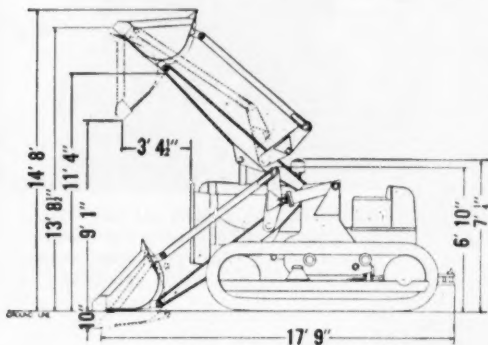


LOADS FAST WITH BIG TWO-YARD BUCKET

The HD-9G digs, stockpiles, loads trucks, feeds hoppers—handles any bulk material two big yards at a scoop. Special 3½-yd. light materials bucket almost doubles output in materials weighing not more than 1400 lb. per cu. yd. Exclusive Allis-Chalmers shift pattern further speeds loading by allowing operator to go from low forward to fast reverse with one simple gear shift.

HIGH DUMPING HEIGHT — 11 FT. 4 IN. UNDER BUCKET HINGE

Here is a Tractor Shovel that reaches for extra jobs. With bucket fully raised, it dumps into high bins. Also, tractor can work right up on storage piles, making it possible to put many more yards of material in a given area.



OVERALL WIDTH, 7' 11¼"

Ask your Allis-Chalmers dealer to show you the many ways this HD-9G has helped others step up production.



WORKS IN CLOSE QUARTERS — NO BULKY SUPERSTRUCTURE

Compact design, plus the ability to turn in its own track length, enables the HD-9G to work in confined areas or where there is little more than tractor-height headroom.



POWERFUL — 72 DRAWBAR HP.

The HD-9G has the power, weight and traction to handle tough excavating on new construction, maintain yard roads and parking lots, spot railroad cars, lift, carry, push or pull heavy loads of all kinds.

ALLIS-CHALMERS

TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Circle No. 6 on Reader Service Card for more information

Exciting and Eventful Century of Pioneering

Baker-Raulang's President Reviews History that Began with Wagon Repairing and Pioneering in Automobile Manufacturing.

FEW COMPANIES have had a more exciting history than the Baker-Raulang Company, which is observing its 100th anniversary.

Some of the company's highlights are recalled by President J. W. Moran:

In 1902, The Baker Motor Vehicle Company gave American motorists their first drive shaft automobile. That same year Walter C. Baker drove his electric "Torpedo" to a 104-mile-an-hour world's speed record.

The first closed-body automobile made in America was produced by Rauch & Lang in 1905.

In 1910 Baker built the first electric road truck.

The "Owen Magnetic" was introduced in 1915, pre-dating other non-shift automobiles by 30 years.

In 1922 Baker produced industry's first ram truck.

Baker engineers in 1924 developed the first "locomotive" type crane.

Baker's articulated fork lift truck—a radical new design—was introduced in 1936.

One of the first hydraulic lifts for high platform trucks was produced in 1942.

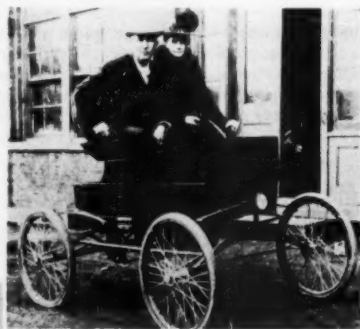


KNOW HIM? It's President Eisenhower, of course, who flashed his best smile from the cab of an old Baker electric in 1942. It belongs to Mrs. Eisenhower's family.

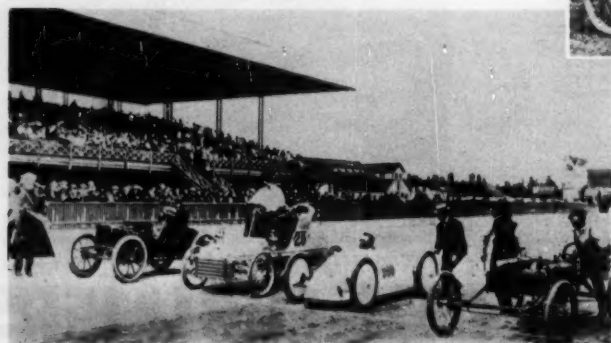
Last year the "Octopus" fork truck designed to handle any shape load in any position, was put on the market.

This year the company introduced the "Gas-O Matic" fork truck.

Baker-Raulang had its beginning in 1853 when German immigrant Jacob Rauch opened his one-man wagon repair shop on Cleveland's west side.



THOMAS A. EDISON and Mrs. Edison in one of Walter Baker's first electric runabouts. The famous inventor helped develop Baker's electric automobile.



104 MILES per hour in 1902! Baker's "Torpedo", a battery powered experimental racer, astounded automobile enthusiasts with the new speed record.

Weld-Bilt

MATERIALS HANDLING EQUIPMENT

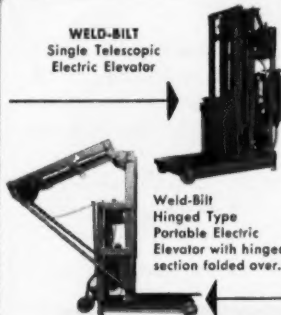
... Improves Production Profits
... Cuts Time and Labor Waste

WELD-BILT PORTABLE ELEVATORS SIMPLIFY SPACE-SAVING STORAGE

WELD-BILT offers you today's most complete and versatile selection of Portable Elevators. Take your choice of single, double telescopic or hinged types, motor or hand operated, with sizes and designs to fit your needs exactly. They're available with all types of platforms, solid, roller, hinged, revolving, forked or special designs. Capacities, from 500 to 5,000 lbs.

Write or wire today for prices and catalogs — or for engineering assistance in making your handling more profitable.

WELD-BILT
Single Telescopic
Electric Elevator



Weld-Bilt
Hinged Type
Portable Electric
Elevator with hinged
section folded over.

Other Weld-Bilt Products Include: Tilt Trucks — Trailer Trucks — Package Trucks — Dump Trucks — Drum and Barrel Stands — Semi-Live Skids — Tying Machines — Pallet Skid and Drum Storage Racks and Specialized materials handling equipment. Dumb Waiters and Specialized Freight Elevators.

WEST BEND EQUIPMENT CORPORATION
Materials Handling Engineers

335 WATER STREET, WEST BEND, WISCONSIN

Circle No. 161 on Reader Service Card for more information

OTHER

"Weld-Bilt"
PRODUCTS

PRODUCTS
TO INCREASE YOUR
MAN-POWER EFFICIENCY...



TWO-WHEEL
HAND TRUCKS

Spring-Bearings for easier moving over rough floors.



PALLET-TYPE HYDRAU-
LIC LIFT TRUCKS

Handle single or double-face pallets up to two tons.



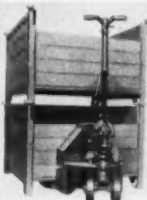
SKID PLATFORMS

Extra-strong, with replaceable floors, standard and special designs.



HYDRAULIC LIFT
TRUCKS

Built for longer life easier mobility.



TIERING BIN PALLET
In all sizes and capacities.



SINGLE-STROKE
MECHANICAL LIFT
TRUCK

A Quick-Lift Time Saver



DRUM and BARREL
TRUCKS



PLATFORM TRUCKS

Spring-Bearing Equipped for Product-Protection, Floor Saving. In many types and sizes.



SKID and PALLET RACKS



DOCK TRUCKS

Spring-Bearing for easy moving.

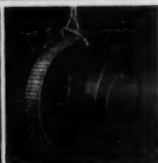
WANTED!

TOUGH LIFTING JOBS

FOR GRIPPER WW* SLINGS



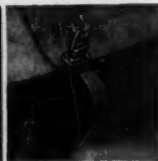
Squares



Round units



Compact loads



Long Members

WW*—WOVEN WIRE, the newest, most versatile type of sling in the materials handling market. Only Gripper slings are made from **WOVEN WIRE**.

You can make easy work of the toughest lifting jobs with a Gripper Woven Wire Sling! Its full flexibility gives a tight grip around any shape load, provides stability and safety not obtainable in any other type slings.

All metal construction means longest life, freedom from damage even in handling sharp-edged loads such as steel flats and squares. Woven wire construction means you'll be rid of kinking, tangling, sudden breaks in the sling body.

They're available in any width or length... every Gripper Sling protected to make sure it meets loading specifications.

See your mill supply, materials handling or safety equipment distributor for full information... or write direct for free illustrated catalog and price list.



The Cambridge Wire Cloth Co.

Dept. W-9 • Cambridge 1, Md.

WIRE CLOTH	METAL CONVEYOR BELTS	SPECIAL METAL FABRICATIONS
------------	----------------------	----------------------------

OFFICES IN PRINCIPAL INDUSTRIAL CITIES
Distributors—write for open territory data
Circle No. 27 on Reader Service Card

"Shiftless" Driving Demonstrated

Hydratork, Clark Equipment Company's new automatic transmission, was formally introduced at a recent luncheon in Detroit.

The transmission makes it possible to operate a gas-powered fork truck with the same 3 controls used to operate an automobile, namely, an accelerator, a brake pedal and a forward-reverse selector lever. Design of the unit has eliminated gear shifts and the clutch and clutch pedal.

Basic units of the automatic transmission are a torque converter and a single-step, constant-mesh, forward-reverse transmission. The converter is a standard single-stage, 2-phase, 3 member unit, and consists of impeller, stator and turbine.

Power from the torque converter is transmitted to a one-piece automotive-type main drive shaft-gear. Forward and reversing mechanisms are duplicate sets of gears, each set consisting of: 1. a primary spool gear riding freely on its countershaft, one end meshing with the main drive gear and the other end acting as a mount for 5 discs; 2. a secondary drum-shaped gear, splined to the countershaft, with external helical teeth meshing with its "twin" and with internal teeth which act as a mount for 5 discs; 3. discs of the primary and secondary gears of a particular set alternating and kept apart by springs. A selector gear is splined to the countershaft of the forward gear set and is in constant mesh with the pinion shaft which drives the ring gear on the drive axle. The countershaft of the reversing gear has a spacer in place of the selector gear.

To move a truck, a driver needs only flip a direction selector lever, which activates a piston in the forward or reverse secondary gears. The piston forces discs of the proper secondary gear and primary gear together, causing them to turn as a unit. Rotation of the main drive gear is transmitted through the engaged primary and secondary gears to the countershaft, through the pinion shaft and to the ring shaft on the drive axle, and the truck moves.



TOP—W. E. Schirmer, Clark vice president greets group at luncheon.



RIGHT—Dis-mantling automatic transmission.

Put Your Foot Down

on MATERIALS HANDLING COSTS



GENERAL 20-TON YARDCRANE with Torque Converter and Foot Throttle will step up your plant yard efficiency

IN RAISING a heavy load, it is not necessary to race the engine. You engage the clutch with engine idle, then step on foot throttle to raise the load smoothly, with no jerk or strain.

IN LOWERING the load you have smooth, accurate control, and with the live, independent boom hoist you can spot the load exactly where you want it.

IN SWINGING the load, there is a smoothness which far exceeds that of other makes.

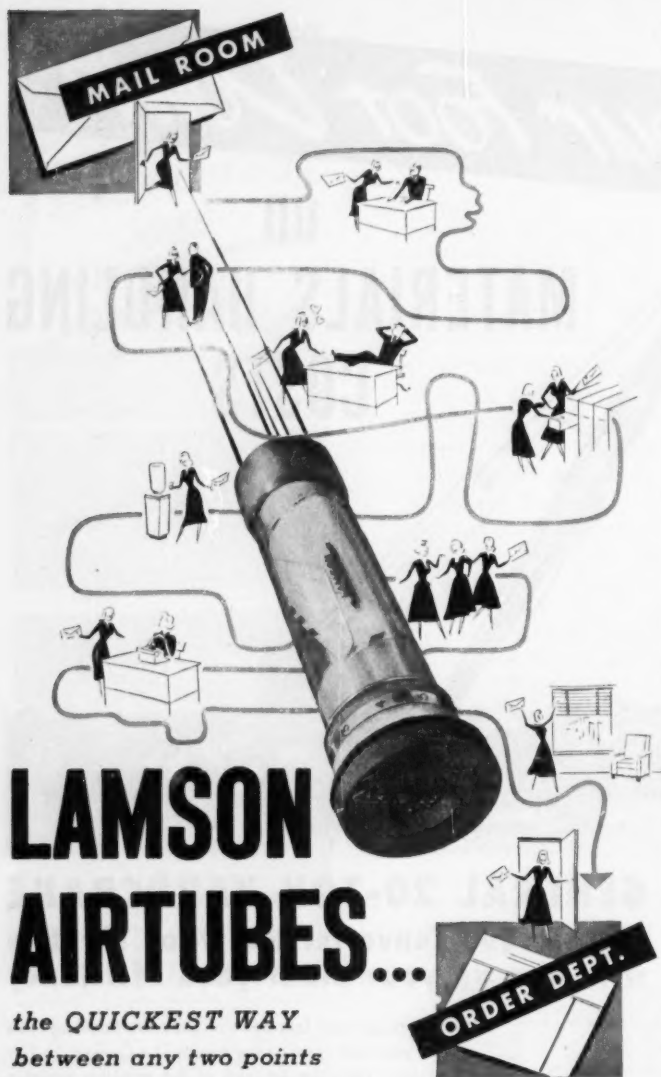
Best way to put your foot down on materials handling costs is to put your foot down on the throttle of a General 20-Ton Mobilcrane. You'll be amazed at the smoothly variable speed and the easy, accurate control of all motions. No jerking, no jarring in raising, lowering, or swinging the boom, just velvet-smooth performance that spots loads exactly where you want them and keeps maintenance at an all-time low. Quick conversion from Crane to Shovel, Hoe, Clamshell, or Dragline. For detailed information, consult the nearest OSGOOD-GENERAL Distributor.

OSGOOD GENERAL

MARION, OHIO

OVER 100 YEARS OF ENGINEERING PROGRESS

Circle No. 182 on Reader Service Card for more information



LAMSON AIRTUBES...

*the QUICKEST WAY
between any two points
for handling mail, reports,
punch cards, drawings, test samples,
file folders, small tools, and
many other similar items.*

Plants at
Syracuse
and
San Francisco

Offices
in
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LAMSON CORPORATION
1409 Lamson Street, Syracuse 1, N. Y.

Yes, I'd like to know more about Lamson Airtube Systems. Please send me the descriptive case-history brochure, Airtubes on Target. No obligation, please.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

LAMSON

Circle No. 84 on Reader Service Card for more information

2-WAY RADIO

(Continued from page 87)

This situation probably occurs because the dispatcher, with his intimate knowledge of the plant layout and materials being handled, is, in effect, sitting right alongside the driver.

Time Is Utilized

To utilize all the available radio time efficiently, all transmissions on the network are limited to short conversations or a code. When the system was new, the radio operators kept up a constant line of chatter back and forth between the control stations and the four trucks. It was a novelty, and they liked it. However, as more mobile units were added, there was less time available for each transmission. So, a code system was established. The control station is called "H.Q.", and truck identifications consist of one letter and one number. For instance, if the dispatcher wishes to contact the #1 fork truck he simply says "H.Q. to F.1." The truck operator answers "F.1." The dispatcher then gives the instructions which are acknowledged by only "O.K."

When a truck operator wishes to let the dispatcher know that he is doing something—such as leaving a particular location with a load—he does not call "H.Q."; he just makes a statement such as "F.1" leaving "C.S." The dispatcher already knows whether the truck is empty or loaded and, if loaded, what the truck is carrying. "H.Q." then acknowledges the truck operator's statement by stepping on the base station transmitter button which produces a click in the truck radio.

Many Jobs Are Coded

Many repetitive jobs have been coded. All the truck drivers know the codes. In them, #1 means loaded, #2 means handling, and #3 means empty. Jobs carry letters or numbers and are always said first after the truck identification. For instance, if an industrial truck driver wishes to report to the dispatcher that he is leaving the Electrolytic Tank House with three one ton boxes of crude copper powder and his destination is

Team up with **Mercury**

GET THE JOB DONE FASTER - EASIER - AT LOWER COST

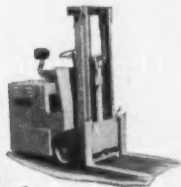


- ★ Over 41 Years Experience in the Designing, Manufacturing and Installation of Material Handling Equipment.
- ★ The Most Complete Line of Equipment for BOTH Vertical and Horizontal Handling.
- ★ Originators of the Mercury "TRACKLESS TRAIN" System of Materials Handling.

FORK TRUCKS

A few of the outstanding quality features of Mercury Fork Trucks include—simple, single cylinder low pressure hydraulic lift with patented cross suspension . . . magnetic contactor travel control with foot actuated, timed acceleration and controlled plugging . . . shockless wheel steering by means of compensating, controlled castor type trail axle . . . double reduction unit assembled drive.

"YAK" FORK TRUCK Model 430
4,000 lbs. capacity



"JEEP" FORK TRUCK
Model 230
2,000 lbs. capacity

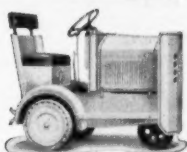


"YANK" FORK TRUCK
Model A-1544
6,000 lbs. capacity

TRACTORS AND TRAILERS



"Tug" Electric Tractor: Available in 3 capacities and 3 wheel, twin-3 or 4 wheel types.
"Banty" Gas Tractor: The smallest tractor made, yet develops a draw bar pull in excess of 2,000 lbs.

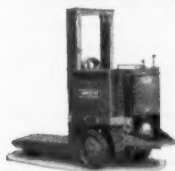


Also, **"Huskie"** and **"Super-Huskie"** gas tractors, 4 and 6 wheel heavy-duty models.
Trailer: Available in castor, 5th wheel or 4 wheel steer, platform or side dump types.

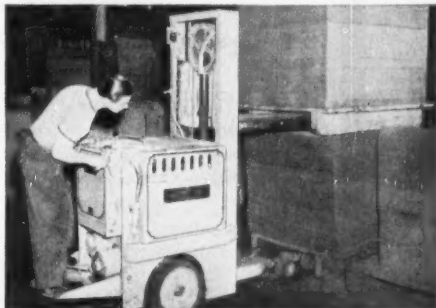


The Mercury **"Huskie"** tractor hauling a train of loaded Mercury type A-310 trailers in a large electrical manufacturing plant.

PLATFORM LIFT TRUCKS



Illustrated right is **"Shuttle-Truk"** 3-wheel burden carrier, 2,000 lbs. capacity. Illus. left is **"Standard"** high lift truck, 6,900 lbs. capacity. Complete line includes narrow or wide models rated at 3,000, 4,000, 6,000 and 10,000 lbs. capacity with low, high or telescopic lift.



The Mercury Model A-1006 narrow type 4,000 lbs. capacity high lift truck stacking skids of corrugated paper in a carton manufacturing plant.

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Bulletin 300, a new 44 page catalog illustrating and describing the complete MERCURY line of Fork Trucks, Tractors, Trailers and Platform Lift Trucks.
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The Original

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BELT CONVEYOR

The MOST VERSATILE slider-bed belt conveyor on the market today. *Over 4000 satisfied users say so.*

The UNITABLE, with its integrated **POWER PAC Drive**, will save you money in initial cost, upkeep and performance. Full specifications upon request.

NEAR YOU is a distributor of **SPECIALTY Belt Conveyors, Slat Conveyors, Gravity Conveyors, Press Conveyors, "Unitrough" Belt Conveyors, Unipac Handlers (Portable Pilers), Reciprocating Lifts and Complete Package Handling Systems.**



CONVEYOR
Specialty
COMPANY, INC.

36 Newport Ave., North Quincy 71, Mass.

2-WAY RADIO

Continued

the Copper Powder Refining Department 2000 feet distant, he merely presses the push-to-talk button on his microphone and says "F1-1-1". The dispatcher steps on his transmitting button and the conversation is complete, even though the dispatcher may be talking over the telephone at the time. It is not uncommon for the dispatcher to complete 700 to 900 two-way conversations per 8-hour day. Let me hasten to point out that as yet all this is not necessary, but we are building for the future.

A typical example of the increased productivity of the materials handling vehicles can be seen from the activities of a jeep which is used to make what is known as "service calls". These are miscellaneous trips for the mechanical department, storeroom and other departments. A driver averaged 6½ of these trips per day before two-way radio. He is now making between 15 and 20 a day.

A truck and 24 demountable dumping bodies were intended to service the plant area each day. A 5-ton, standard dump truck assisted in the work. They could not keep up with the job under the old system. There were always five or six boxes not being used. Soon after two-way radio was installed in the truck, it was necessary to purchase 13 additional demountable containers, which are still in use. Now, when one of the containers becomes full, the foreman calls the radio dispatcher and the truck is immediately sent to pick up the box. This also put a definite end to the need for the dump truck and the labor crew which accompanied it. We now have a much cleaner and neater plant area, besides.

By simple addition we can see that the amount of material handled each day has increased tremendously while, at the same time, the cost for each individual load has been sharply decreased.

"Lost" Without Radio

The extent to which we have become dependent upon quick

Circle No. 44 on Reader Service Card.



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Designed for...

Pallet type
"Walkie" truck
4000 to 6000 lb.
capacity.

Hi lift "Walkie"
type 3000 to 4000
lb. capacity.

Platform
"Walkie" type
4000 to 10,000 lb.
capacity.

✓ PURCHASING DEPT.

Costs less . . . fits into budgets . . .
economical.

✓ ENGINEERS...

Rugged, all welded construction . . .
constant traction . . . stabilized 4 point
load support on Hi-Lift . . .

✓ PLANT MANAGERS...

Small . . . compact . . . minimum opera-
tion and storage area . . .

✓ OPERATORS...

Simplified operation through "Roller
Grip" controls . . . anyone can operate the
truck with very limited instruction . . .

✓ MAINTENANCE MEN...

Especially designed for quick serv-
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Regardless of individual titles, it will pay
you to get ALL the facts on MOTO-TRUC . . .
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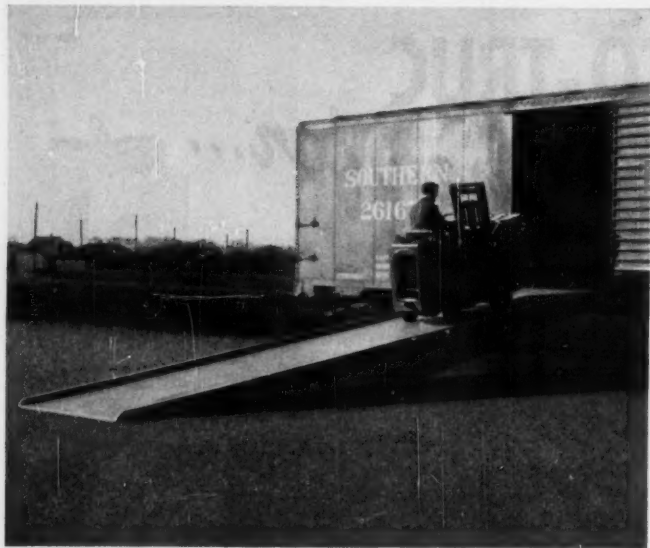
Model G. A.
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The **MOTO-TRUC Co.**

Representatives in Principal Cities

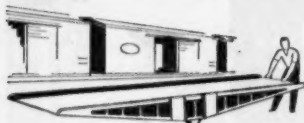
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LARGEST EXCLUSIVE MANUFACTURER
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Where and when you want it!

MAGCOA'S NEW Portable MAGNESIUM YARD RAMP



One man moves it.

A MOVABLE LOADING DOCK

One man wheels this husky Yard Ramp right up to the car... the simple hydraulic lift helps position it... and material starts to move, fast.

- you get fuller use of present facilities, lift trucks and operators—less idle time.
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- you eliminate additional investment in inflexible, immovable dock facilities.

FOR RUGGED HIGH-SPEED HANDLING

Magcoa engineering and manufacture converts light-weight magnesium into a rugged, heavy-duty Yard Ramp... braced like a bridge... tailored to your specific load requirements. Capacities to 16,000 pounds in five basic sizes—or a "special" for unusual requirements, delivered with usual Magcoa promptness, thanks to mass production methods.

WITH FAMOUS MAGCOA SAFETY FEATURES

Magcoa safety features, including quarter-round safety curbs, protect operators, handling equipment, fires and loads.

MORE THAN 1000 COMPANIES are already looking into how this amazing new equipment can save them money. There's free new literature that can help you do the same thing. Use the handy coupon.

Hydraulic lift positions it.



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1

Circle No. 92 on Reader Service Card for more information

2-WAY RADIO

Continued

communications with our material handling vehicles was impressed upon us recently. We took delivery on a side-loading fork truck and, while waiting for the two-way radio to be installed in it, tried to use the new truck. Accustomed as we were to the use of radio on similar equipment we already had, we were lost without it and might as well not have tried to run the truck until it was radio-equipped.

Allied Uses Keep Equipment Busy

Before the advent of two-way radio we operated a plant protection patrol department of numerous men patrolling the buildings and area on foot. After we had begun to use radio we soon realized that the function of the patrol could be performed just as effectively and much more efficiently by equipping jeeps with radio and eliminating all walking patrols. When this was done we found that we had a force of thirteen patrolmen too many. These men were assigned to other duties, and a large saving was effected.

The jeep ambulance originally stationed at the plant hospital was also radio equipped. It now doubles as a patrol jeep, thereby saving one vehicle, while still giving service as an ambulance through instant radio contact.

An additional radio remote control unit was installed in the gate house. This allows the night switchboard operator to be in constant touch with the patrolmen at all times and also enables him to send the ambulance to accidents at a moment's notice. All trucks have been equipped with fire extinguishers, providing, in effect, as many fire engines as we have radio equipped trucks.

Other uses, such as the location of people in a hurry, fast reporting of and dispatching aid for accidents, and quick service for mechanical or electrical troubles, add to the total of reasons why we maintain that if there was only one truck in the company we would have it radio-equipped.



Yale Electric Trucks give safe handling ... cut costs as much as 75%

DIFFERENT LOADS call for different equipment—and the comprehensive YALE line offers exactly the truck your job requires, whatever your business may be.

To keep down maintenance costs and assure 24-hour service, YALE Trucks offer such special features as: Hypoid Gears, Involute Spline Drive Shafts, and Yale Lift

Channels. As a result, YALE users report unusual savings—with handling costs often reduced as much as 75%.

Choose the truck you need from YALE's wide variety of models, including Gas, Diesel, LP-Gas, Gas-Electric, and Electric in capacities up to 100,000 lbs. Attachments available for specialized handling jobs.

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MATERIALS HANDLING EQUIPMENT

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Gas, Electric, Diesel Lift Trucks • Worksavers • Hand Trucks • Hand and Electric Hoists • Pul-Lifts
Circle No. 165 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953



One FARQUHAR CONVEYOR plus half the manpower moves cement bags in one-fourth the time!

At the J. C. Cornillie Co. in Detroit, formerly *six* men were needed to load and unload their warehouse in a given time. To speed this operation, *one* Farquhar Conveyor was installed. Not only has it *quadrupled* the number of cement bags that can be handled in and out of trucks and railroad cars in the same time, but now only *three* men are necessary for the job!

Whether you move coal, gravel, sand,

aggregates, cartons, boxes, bundles, bales, or any kind of bulk or packaged materials—horizontally or from floor to floor—Farquhar can cut *your* handling costs to rock bottom! One or more of the complete line of Farquhar portable, semi-permanent and permanent power-belt or gravity conveyors will solve your handling problem. Our engineers will be glad to consult with you . . . at no obligation!



**POWER-BELT
AND
GRAVITY
CONVEYORS**

FREE! "Owners Report"—booklet of case histories showing typical money-saving conveyor installations.

MAIL COUPON FOR YOUR COPY

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Dept. S-06, York, Pa.



Gentlemen:
Please send me my free copy of "Owners Report."

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Circle No. 53 on Reader Service Card for more information

LP-GAS . . .

(Continued from page 85)

With less heat units, a higher fuel consumption at the same compression ratios as gasoline can be expected. However, with increased compression ratios in LP-Gas engines and with a cold manifold and proper carburetor setting, the fuel consumption can equal gasoline.

How is this accomplished? Well, if the compression ratio of an engine is increased from 7 to 1 to 10 to 1, there is an increase in thermal efficiency of 15 percent. That leaves 12 percent loss, but from the results of many field tests, it is found that the effects of improved manifold distribution and clean burning characteristics of LP-Gas more than offset this loss.

Requirements for Conversion

Because liquefied petroleum gas requires pressure storage and special handling techniques, its use for industrial trucks will be of greater interest to plants now using LP-Gas for other purposes. Here, it is a simple job to add a liquid transfer pump, meter, hose and fueling nozzle to the present piping to refuel trucks.

Fuel tanks on the vehicles themselves must be equipped with proper fittings designed for 250 psig, and approved by Underwriters Laboratories. Fittings on the tank include a safety valve set at 250 psig to adequately relieve internal pressure if the tank is over-filled or involved in a fire. Other fittings are a filler valve, liquid gauge, a vapor valve and a liquid valve.

From the tank, liquid propane is piped to a strainer and then to the converter or vaporizer, where the pressure is reduced and the liquid is converted to a gas by the engine cooling water. The dry vapor at approximately atmospheric pressure is then fed to the carburetor where it is mixed with air and fed to the manifold.

The LP-Gas system does exact-

ly the same job as the gasoline fuel system, but accomplishes it in a much different manner. Since tank pressure with propane is always higher than is required, the pressure must be reduced. A high pressure regulator is used and is comparable to the fuel pump, as it must maintain a constant output pressure to the zero or secondary regulator.

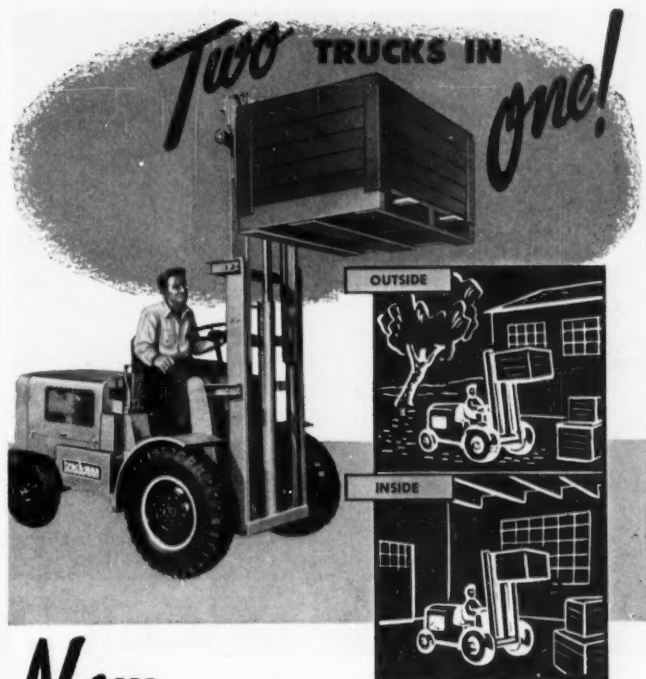
This regulator is equivalent to the float bowl of the gasoline system. A hot water vaporizer or converter is used to vaporize the fuel in a liquid withdrawal system. In the gasoline setup, the fuel is sprayed or atomized into the air stream and vaporized by heat from the manifold.

There is another method where by vapor is taken from the vapor space in the tank and piped directly to the two pressure-reducing valves and then to the carburetor. This method is sometimes used for small engines and where atmospheric temperatures are high enough to supply the heat necessary to keep the LP-Gas boiling in the tank.

Other changes necessary to convert a gasoline engine to an LP-Gas engine are: compression ratio of the engine should be raised to the highest ratio recommended by the manufacturer; change intake manifold to cold manifold; adjust timing for best operation; cold spark plugs are used, usually one range colder than required on the same engine for gasoline.

The best method for changeover of an engine is to have the engine manufacturer supply the engine equipped to burn propane. If the engine manufacturer cannot supply a fully-equipped engine, he can advise how to convert the engine, and the truck manufacturer or a trained mechanic should make the conversion.

Conversions by the user should be discouraged unless approved by the manufacturer or a competent consultant. The LP-Gas supplier can be of assistance in this changeover. Of course, the insurance carrier and local regulatory



New truck-man MODEL 40

THAT'S RIGHT!—The Model 40 High Lift has the power, traction and footing to really do a job outdoors.

PLUS—The maneuverability (72° turning radius), compact design and special features for top efficiency in material handling indoors; whether stacking in the warehouse, loading and unloading cars or trucks, or intra-plant service.

ECONOMICAL TO MAINTAIN FOR THREE BIG REASONS

- 1 RUGGED**—The big Ford Engine, oversized clutch, heavy duty transmission and axles insure less maintenance.
- 2 ACCESSIBLE**—The tilt cylinder is mounted above floor decking for easy adjustment or service. Engine, clutch, transmission or axles are removed in a jiffy for bench repairs.
- 3 STANDARD FORD PARTS**—Serviceable at any Ford garage, include: hydraulic brakes, engine, differential, clutch, drive axle, and wear parts of steering axle.

Write or check coupon and mail today for catalog with complete details on the Model 40 and 8 other versatile Truck-Man trucks.

truck-man

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582 Liberty St., Jackson, Michigan

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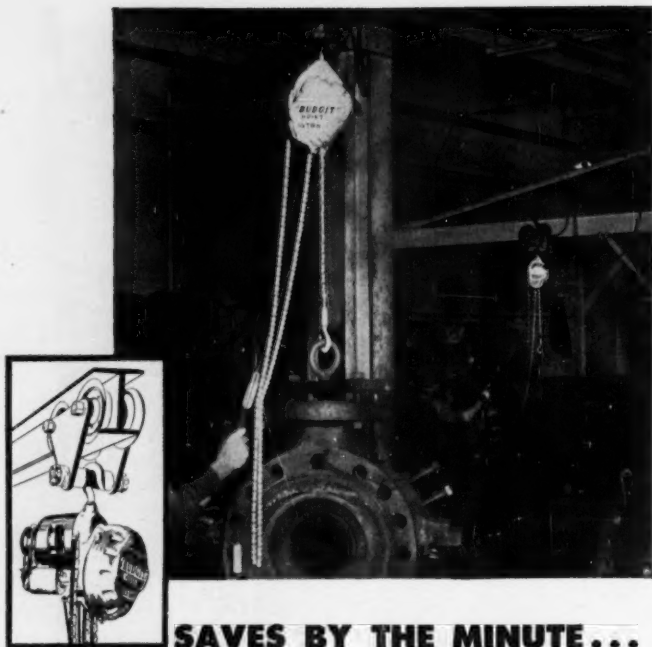
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SAVES BY THE MINUTE...

'Budgit'® ELECTRIC HOIST

Outdated load-handling methods create costly production jams. That's why so many plants invest in the 'Budgit' Electric Hoist. A slight pull on the convenient control cord of the smallest 'Budgit' lifts 250-pounds with a 34 foot-per-minute speed. One hand is always free to guide the load. Such quick, effortless load lifting boosts output, lowers costs.

The rugged 'Budgit' Electric Hoist has every feature to assure complete safety for man, load, and hoist. So—avoid hazardous heavy manual lifting and the fatigue that goes with it. Give your men more time for production. The 'Budgit' is an easy-to-use portable hoisting unit. No installation expense. Nothing extra to buy. Just hang up, plug in and start economical lifting. Capacities: 250 to 4,000 pounds, A.C. and D.C. models. Prices start at \$129. Ask your nearby "Shaw-Box" Distributor for complete details or write for Bulletin 391.



'BUDGIT' CORD REELS keep conductor cords taut, up out of the way. The cable reels off in all directions — increases the operating range of any hoist, portable tool, or mobile device having motors up to and including 1 H.P.



'Budgit'® ELECTRIC HOISTS **MANNING, MAXWELL & MOORE, INC.** **MUSKEGON, MICHIGAN**

Builders of "Shaw-Box" and "Load Lifter" Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, and 'American' Industrial Instruments.

Circle No. 94 on Reader Service Card for more information.

LP-GAS

Continued

bodies should approve the complete installation and its use in a particular occupancy.

Advantages of the Gas

Perfect vaporization is cited as one of the chief advantages of liquefied petroleum gas. Vaporizing gasoline in an intake manifold has been a problem for years, and has resulted in rich idle mixtures, liquid gasoline entering the firing chamber, cylinder wall washing, excessive cylinder wear and crankcase dilution.

With LP-Gas, only dry vapor enters the manifold and these problems are eliminated. This is said to cut maintenance and lubricating oil costs by 50 percent or more.

Another advantage is the high octane number of LP-Gas. Propane has an octane rating of 112, butane one of 92, ethyl gasoline one of 90 and regular gasoline one of 83.

The question of uniformity has also been a problem to engine manufacturers. Gasolines vary considerably in various parts of the country, and at different seasons. Consequently, it has been difficult for the designers to build an intake manifold that will vaporize low volatile fuels, and still not overheat the mixture going to the cylinder.

Uniform Specifications

The LP-Gas industry has uniform specifications for propane or butane, and wherever purchased to these specifications, the fuel is relatively the same.

Since liquefied petroleum gas is completely vaporized and evenly distributed to all cylinders, it is a cleaner-burning fuel. When LP-Gas is purchased to specification, and it costs no more to do this, then you have a fuel free of impurities such as sulfur and gum which contribute to valve burning and cylinder wall wear.

The exhaust fumes from an engine burning LP-Gas are noticeably free of bad-smelling and eye-irritating fumes. Any engine will

give off carbon monoxide, but by proper adjustment of the carburetor, CO content will be less than with gasoline.

A report issued recently by a Mutual Fire Insurance company lists the various causes of fires involving gasoline-powered industrial trucks. Of the fires, 54 percent resulted from the ignition of gasoline spilled during refueling. With LP-Gas fueled trucks, the fuel system is entirely closed and there is no spillage of fuel.

There is no glass sediment bowl in an LP-Gas system to break. All connections on the fuel tank are protected by quick-closing excess flow valves that automatically shut off if a fuel line is broken.

The fuel line also has a shut-off valve actuated by engine oil pressure or engine vacuum, and will automatically shut off fuel to the engine when the engine stops, or by a solenoid valve which closes when the ignition is turned off.

In summing up, LP-Gas has been proved an ideal fuel for internal combustion engines through its extensive use in trucks and buses. The operation of industrial trucks on this fuel is as safe, if not safer, than other liquid fuels. When purchased in tank car quantities, it costs less than other fuels in most localities.



"Never Mind How—
Just Get Me Out!"



EASY DOES IT!

'Load Lifter' SPEEDS TOUGH HANDLING

THE "SERIES 700" 'LOAD LIFTER' HOIST is the one electric hoist you can depend on for continuous service to keep defense and civilian production on the move. It's a heavy-duty hoist, built for 3-shift lifting every day in the year.

IT'S FAST AND ECONOMICAL — Shortens handling time — lifts a ton 30 feet a minute. Costs go down when the 'Load Lifter' does all the heavy work.

IT'S TOUGH AND SAFE — The 'Load Lifter' has every feature to safeguard man, load and hoist. Only 24 volts at the push button. Powerful motor and load brakes that act simultaneously. Steel suspension. No exposed wiring. Over-capacity load hook.

IT'S BUILT TO LAST — Heat-treated helical gearing provides greater strength. Ball bearings throughout minimize frictional wear. The 'Load Lifter' is constructed with few parts to assure trouble-free service.

SAVE IN YOUR PLANT — Wipe out muscle strain and maintain worker efficiency. Give your production a lift at the same time. 'Load Lifter' capacities range from 1/2 ton up. Ask your "Shaw-Box" Distributor for details or write for Bulletin 399.

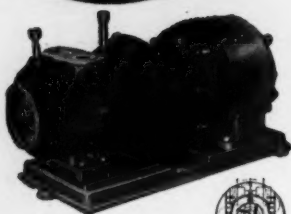
'Load Lifter' ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and "Load Lifter" Cranes, "Budgit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, and "American" Industrial Instruments.

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NEW KRAISSL AIR PUMPS for SUCTION and PRESSURE



Eliminate Oil Vapors from Discharged Air

The new Kraissl Class 23 pumps completely eliminate undesirable oil vapors from discharged air. In many operations, this means a tremendous saving to you—in time, materials and industrial health. Pumps are dry lubricated—displacement blades take up their own wear. Positive, fan-cooling for continuous high performance. Available with double extended shaft for group installation from single power source. Performance data: 1750 RPM, but not limited to this speed. Capacities from 5 cfm—20 cfm, for single units; larger capacities by group drive.

Kraissl Class 23 pumps are specifically designed for all packaging and printing machinery, and similar applications where air pressure or suction, without discharge oil, is preferable.

- Suction feed or pick-up of paper, cardboard tin, etc.
- Container-filling: bags, bottles, tubes, etc.
- Automatic handling on conveyor systems
- Packing in shipping crates and cases
- Printing presses and vacuum printing frames, casting boxes and dusting tables
- Vacuum canning machines
- Vacuum holding chucks
- Ideal for handling food products, beverages, pharmaceutical preparations—where rigid sanitation standards are mandatory.

FREE

Write today for our new bulletin A-1399
Use this handy coupon

Kraissl Co. Hockensack, N. J.
Please send your bulletin A-1399

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Company _____
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KRAISSL CO., Inc.
292 Williams Ave., Hockensack, N. J.
Circle No. 179 on Reader Service Card

HANDLING RAW MATERIALS . . .

(Continued from page 71)

beneath the tracks. It must be moved from this point to the 20 potrooms set up in five individual lines, each with its own separate building and complete facilities.

From the screw conveyors, material flows onto belt conveyors which carry it to overhead storage tanks. From there, it is fed into portable receptacles as needed and moved by overhead crane into potrooms. Auxiliary fusing materials are added in the potrooms. Front end loaders, and fork trucks carrying specially designed hoppers perform this task.

As a crucible is filled with molten metal from each pot, it is picked up by an overhead crane and moved to the mounds. Each of the 20 potrooms has its own crane.

After pigs have cooled, they are moved by industrial trucks to freight cars within the plant or to the nearby barge dock. At the dock, a mobile crane picks up pigs and loads them into a 1500-ton steel barge for transport.

NOLAN ONE-MAN CAR DOOR OPENER



**Opens Doors in 20 seconds
or less!**



The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 2000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety and efficiency features now make the Nolan 1-Man Car Door Opener a more necessary labor-saving money-saving help than ever before.

**Many thousands in
constant daily use!**

Free Literature. Order one or more NOLAN Model-B Car Door Openers now. Catalog on request.

The NOLAN Co.,
118-C Pennsylvania St.,
Beverton, Ohio

\$37.50

F.O.B. Bowerston

Circle No. 116 on Reader Service Card

introducing



**the Coffing
COIL CHAIN
SAFETY-PULL
RATCHET LEVER HOIST**

The Model RG is now available in 1,500- and 3,000-lb. capacities—other sizes will follow.

*Advanced Guard for a
New, Advanced Line*

Here is a completely new ratchet lever hoist designed to bring you added safety and convenience. The Model RG incorporates the time-proved ratchet and pawl principle originated by Coffing—makes it hold positively at all times—no friction-type brake to slip or freeze—chain is free wheeling when not under load.

Many New Advantages

COIL CHAIN Swings or wraps in any direction for greater flexibility in use.

SIX OPERATING POSITIONS Handle operates in any position, works on full or partial strokes—for ease of handling in close quarters. Safety stops prevent spinning of handle.

BIG SAFETY FACTOR For your protection the Model RG has 100 percent overload safety factor, although the warranty covers only up to rated capacity. "Safety-valve" handle bends at point of maximum safe overload.

SIMPLE TO SERVICE The Model RG may be completely disassembled with only a screwdriver for easy servicing. Not necessary to return it to the factory for repairs.

Find out more about the hoist that gives you greater convenience and safety in all lifting, pulling, stretching. Write for Bulletin FL9R.

**COFFING HOIST
COMPANY**
Danville, Illinois

Quik-Lift Electric Hoists • Moist-Alls • Load Binders
Mighty-Midget Pullers • Spur-Geared Hoists
Differential Chain Hoists • I-Beam Trolleys

Sold by Industrial Distributors everywhere
Circle No. 33 on Reader Service Card.
FLOW • SEPTEMBER, 1953

KNOCK OUT WALLS . . .

(Continued from page 32)

shearing bay. Formed components (bench legs, table tops, etc.) leaving the presses and brakes are carried in steel bins by radio-controlled fork-trucks and driver-led platform lifts.

The formed parts move to the welding area where they are stored conveniently on either side of the welding booths. Material then flows cross-wise through the welding booths to the overhead chain conveyor . . . a distance of about twenty feet. This arrangement permits storing of parts for welding little more than ten feet from the welding booths. In the old setup, with an intervening wall between, material to be welded had to be moved as much as 300 ft. from parts storage to welding.

As they leave the booths, welded parts are immediately hung on an overhead chain conveyor that winds through the entire press shop. In sequence, the conveyor takes unfinished components through a five-stage washer, a dry-off oven, an automatic paint spray booth, and a final baking oven. Both ovens are located overhead in the high-bay section of the plant to permit unrestricted flow down the center of the building. Finished parts then ride on the conveyor to an assembly, packing, and shipping area.

The advantage of a virtually wall-less plant has been more apparent in the manufacture of precision-ground specialty aircraft parts than in any section of the plant. The process now, as before, requires nine operations. Fasteners are taken through various forming, finishing, inspection and packaging stages.

Formerly, these operations were located in eight different buildings. Now, with most of the plant walls knocked down, the product has to pass through only two plant walls from start to finish, and the second of these two barriers, the wall between the plant and the

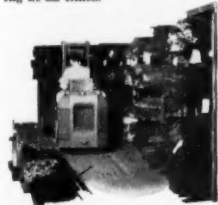


RCA radio-equipped truck can be located at any time. Operator receives instructions directly from dispatcher—travels directly from job to job.

Get two-way payloads with RCA 2-way radio



Dispatcher maintains close control over truck usage—knows where all trucks are—can keep trucks working at all times.



Driver can be contacted with RCA 2-way radio even when truck is surrounded by ceiling-high stockpiles of steel.

Metalworking plant reports . . . "Dispatching time cut from half-hour to 5 minutes"

Instant contact with all truck operators . . . anywhere . . . any time. That's the secret of efficient materials handling at a large Philadelphia metalworking plant.

"Radio helps maintain production schedules," says this plant's materials handling man. "The noise and the size of our plant made it impossible to find a truck in less than half an hour. Now we locate a truck and move it anywhere in five minutes. That's a substantial increase in truck usefulness.

"Since radio has been installed on our trucks, drivers can cover more area because they go directly from job to job without backtracking. Our savings will pay for the radio system in a year."

For extra usefulness from your truck fleet, investigate RCA 2-Way Radio. MAIL COUPON TODAY FOR FREE BOOKLET.



RADIO CORPORATION of AMERICA
MOBILE COMMUNICATIONS
CAMDEN, N. J.

RCA Engineering Products, Dept. 131U, Camden, N. J.

Please send me your free booklet, *Mobile Industrial Radio*.

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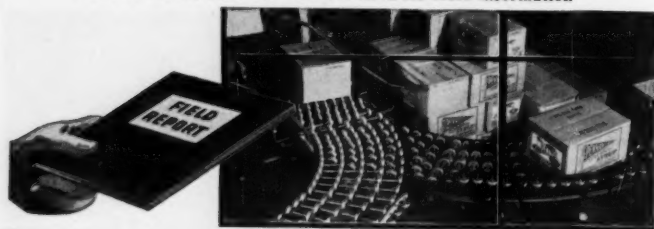
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☐ Please have a representative call on me.

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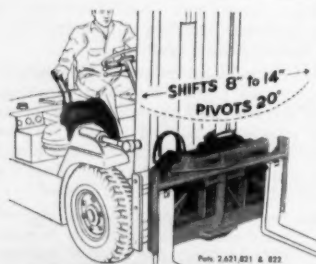
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KNOCK OUT WALLS

Continued

loading platform, is negotiated automatically by an overhead roller conveyor. Although the nine operations are still spread over essentially the same plant area (due to the nature of the process) total travel distance has been cut to 100 ft., a reduction of 40%.

In all, SPS has added 1600 ft. of belt and roller conveyor throughout the plant. At present, most fastener inspection, packing and shipping is conveyORIZED, and eventually all such operations feeding into the loading platform will be handled by belt and roller conveyors.

With the elimination of hampering walls and doors, fork trucks are twice as productive as they were before. At least half of the increase in productivity has been attributed to the installation of two-way radio control. The trucks are operated as a roving fleet and each unit can be assigned to take care of any job anywhere in the plant.

Scrap Handling

The new plant structure has also permitted centralized handling of machine scrap, at a profitable saving to SPS. Now, all machine chips are processed through a crusher and centrifuge before shipping by rail to the steel mills.

By first pulverizing its chips to a coarse powder, then spinning them dry, SPS recovers up to 20% more cutting oil and gets as much as four dollars more per ton for its powdered scrap at the mills.

Dry powdered chips are blown overhead to an 80-ton capacity storage hopper that sits over an in-plant rail siding. This hopper can load a waiting freight car gondola in 20 minutes. Scrap car-loading time has been cut from six man-days to 60 man-minutes.

CONVEYOR WITH "BRAINS" . . .

(Continued from page 90)

of the tote pan as it is pushed on the carrier. Guides on the floor stabilize the carrier during loading. Loads which are too heavy to be handled manually are loaded by lift truck. A hand stop on the overhead track keeps the carrier in position along the scale until loading is completed.

"Brains" of the System

The selector switches are the "brains" of the system. To start a carrier on its journey to another floor, the scaler sets the selector switch, releases the carrier from the hand stop on the track by means of a pull chain, and starts the carrier forward.

The carrier moves ahead and stops at an automatic feeder located on a 180-degree turn at the scale end of the free track loop. While the scaler proceeds with other work, the carrier automatically moves forward at the proper time, engages with the moving power chain, and is pushed under power to the loading station for which the carrier selector switch has been set.

The pre-selected carrier is automatically switched off the power track and onto the free track. It stops in the receiving portion of the loop selected. Should the scaler fail to reset the carrier selector switch, the dispatched carrier will enter the power line in the usual fashion, but will re-enter the same loop rather than traverse the entire system for some time before the error is discovered.

Truckers or scalers unload carriers in the receiving section of the loop by sliding the load onto a section of gravity roller conveyor. A structural angle fastened to the frame of the roller conveyor stabilizes the carrier during unloading. The roller conveyor along the receiving section of the loop serves as additional tote pan storage area, freeing conveyor carriers for inter-floor production movements.

Since the carriers, scales and gravity rolls are all about 9 inches off the floor, loads are, in most

DRUM HANDLER PROTECTS BACKS, SAVES TIME

SAFETY and time were the two factors that induced the Brush Electronics Company to install a fork truck with hydraulically adjustable clamps to dump 350-pound drums of Rochelle salt into mixing tanks at the company's Bedford (O.) plant.

The tanks stand 59 inches high. Before the truck was used, a platform had been constructed in front of each tank, 30 inches from the floor.

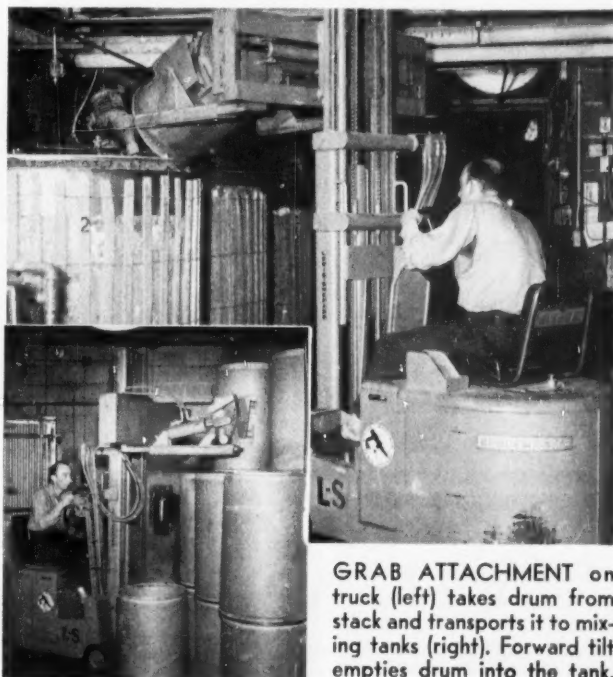
Two workmen lifted the drums from a stack in the storeroom and loaded them onto a cart. From the cart they lifted the drums onto the platforms, mounted the platforms and then dumped the contents of

the drums into the tanks. The lifting and climbing not only were time consuming but also induced muscular tension which could have resulted in injury.

Today, a fork truck, operated by one man, picks up the drums, transports them to the tanks, elevates them to the proper height, tips and empties them.

The drum-handling attachment is an electro-hydraulically operated grab and tilt. The grab is lined with non-slip pads. A by-pass valve controls the pressure on the drum to permit it to be lifted and prevent the drum from collapsing.

The grab is slid onto the truck's forks and is quickly removable.



GRAB ATTACHMENT on truck (left) takes drum from stack and transports it to mixing tanks (right). Forward tilt empties drum into the tank.



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CONVEYOR WITH 'BRAINS'

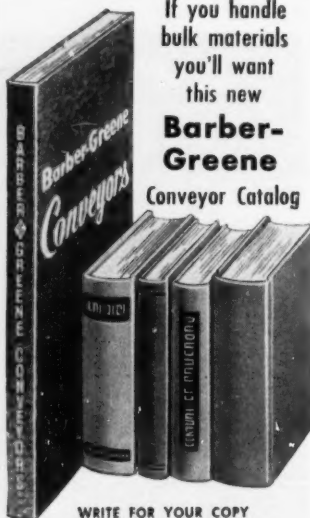
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instances, slid on and off trucks manually.

In the event a loading station becomes filled with carriers, other carriers which are designated for such a full loop circulate on the system until space is available. The carriers then automatically enter the loading station.

Several of the loops ship more material than they receive, and a position is included on the carrier selector switch to designate a carrier as being empty. Any carrier so set continues to circulate on the system until required in one of the loops. To obtain an empty carrier from those circulating, the scaler presses a button and the next empty carrier automatically stops at his loading station.

Safety controls are included to stop the conveyor in the event of a mechanical or electrical failure. A conveyor start-stop button is lo-



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cated at each loop, and two start-stop buttons are located on the transportation run of the conveyor on both the first and fifth floors.

Benefits Derived

Needless to say, a number of unnecessary handling operations were eliminated. The acquisition of the conveyor released, for use elsewhere, trucks of various types. There no longer is confusion and congestion in the aisles at the scaling areas, and, of course, there is no time wasted in waiting for elevators.

As a matter of fact, five obsolete elevators were removed from service, and the remaining freight elevators are now used primarily to move equipment from floor to floor, to transfer basement material to the point of usage, and for the movement of items too heavy or bulky to be moved by the conveyor.

Additional floor space inside the plant was saved by providing openings in outside walls and having the conveyor loop between floors outside the building. Specially-constructed housings were

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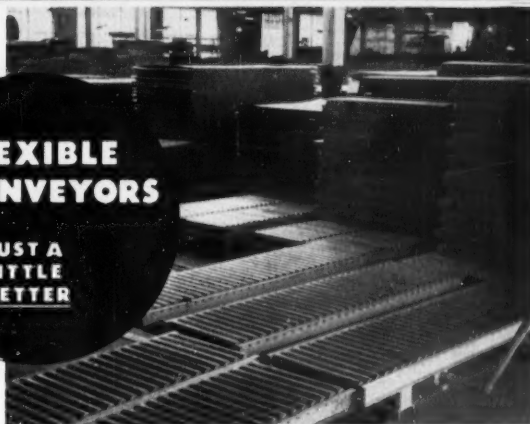
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CONVEYOR WITH "BRAINS"

Continued

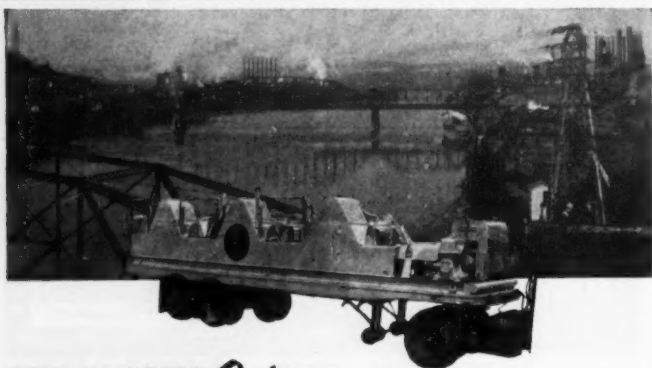
built to protect the conveyor and to provide shelter for the openings in the walls. Made of insulated galvanized sheet metal, the housings extend up the sides of the building.

The total cost of the installation, including building alterations, was approximately three-fourths of what it was estimated that proper modernization of all

the company's elevators would be. Furthermore, the actual savings realized are expected to pay for the installation in about three years.

Finally, the conveyor has considerable excess capacity, leaving ample room for any future expansion. And, should the occasion demand, it can be expanded to service other departments, or even specific machines.

FLOW thanks Stewart-Warner Corp. and Jervis B. Webb Co. for their cooperation in preparing this article.



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Another REEL-O-MATIC "first" . . . our new highline handling unit will handle up to three lines or cables simultaneously and lays or takes in three miles of wire in one hour and 15 minutes. In addition, take-in wire is automatically rewound, eliminating winding or rehandling separately. Here's a unit that will pay for itself on one major job in time and labor savings, giving you bonus profits on installation cost estimates.

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REEL-O-MATIC HIGHLINE HANDLING UNIT can be used for pulling in new wire, reconnection work, removing and coiling old wire, many other cable handling jobs. Operates on take-up, pay-off principle to handle up to three cables in one circuit. Three reels are individually-clutched for separate, twin or simultaneous operation. Automatic hydraulic control with self-power unit. Handles three miles of wire in one hour, 15 minutes. Standard model includes 60" Wind which, all self-contained on 32' tandem trailer for easy transport . . . over any type terrain for on-the-spot work. Readily adaptable to any cable handling problem. Capacity up to 8,000 lb. per reel, on 72" diameter reels 40" wide. Also can be developed to any special application or specifications.

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SPACE UTILIZATION . . .

(Continued from page 67)

power. All loading, conveying, positioning and unloading operations can now be performed by one man.

Among the space and time saving devices at Ryan, the mechanisms used for loading and unloading machines rate high in effectiveness. This is especially true in the jet engine building where large aft frames and afterburners must be loaded into machines and furnaces.

A system of swinging cranes equipped with air-operated hoists at every strategic location has been installed. These devices are compact, consisting of a vertical tubular steel column, bolted to the floor, and a swinging steel "I" beam arm. Free to roll back and forth on this arm is a tiny air-motor chain hoist. These cranes are capable of handling up to 2000 lb. components and are quite responsive to delicate control.

Often, one hoist is located to serve one or more machines. With them one man can load a furnace car or lathe with little effort and without tying up other employees.

Space Requirements Cut

In one area of the jet building, Ryan builds combustion chambers and transition liners for the J-47 General Electric jet engine. Recently, an overhead conveyor system was installed for these two types of component fabrication. As a result, space requirements have been reduced from 9000 sq. ft. to 3456 sq. ft. Production in the department has been stepped up by about 1/3.

The main advantages of the system are: parts are brought to all operators at an easy to reach level and in a steady, uniform flow; time is saved because operators know that each part is in proper sequence and they don't have to wait, reach or look for parts. No parts can be mis-routed or lost as was formerly the case when they were brought in in batches and left near operators. Naturally, the system is easier to balance and supervise because it flows along clearly defined lines.

PLANNED HANDLING . . .

(Continued from page 92)

From there, specific orders are made up by hand on the 30" x 30" skid platforms. In addition, some skids are made up into anticipated loads and put in yard storage. When an order is to be delivered from this company's yard, where there are no loading dock facilities, the material is loaded onto a flat bed truck by means of a fork lift truck.

The driver of the flat bed truck uses a hand lift to position the skid loads for travel after the fork lift places them on the truck bed. The material is positioned in accordance with the order in which the driver intends to distribute it. On a 92" truck bed, the 30" by 30" skids can be positioned three abreast, but it was found that the 30" x 30" size lends itself well to various sized truck beds.

Trucks Placed on Bed

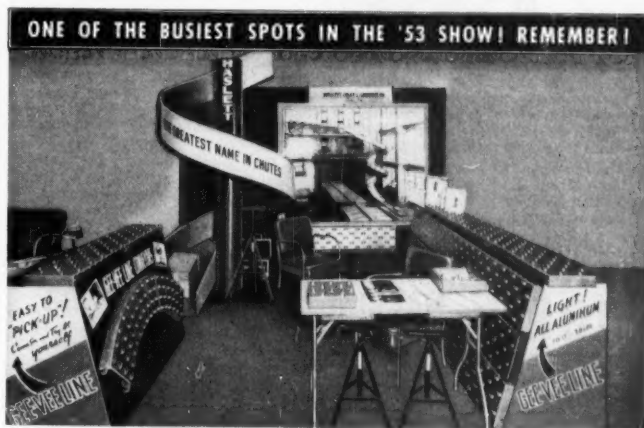
After the truck has been loaded, the driver puts two or three of the hand lift trucks on the bed with the load and drives to his destination. This might be either the site of an original building job or a building where a contractor is making alterations. The truck does not have to find a parking place directly at the building site. It can be parked some distance away, a radical departure from previous delivery methods where the truck had to wait for a spot immediately in front of the site to dump its materials. Upon the truck's arrival at the building site, the driver uses the hand lift truck to position the skidded material on the truck's hydraulic tailgate. The tailgate is lowered to street level and a small bridge plate is placed between tailgate and curb. Then, one of the contractor's workmen using another hand lift truck supplied by the building supply dealer, moves the loaded skid from the tailgate to the sidewalk.

A second workman, also equipped with a hand lift platform truck, moves the material from the sidewalk to the spot where

the material is needed. Unloading time has been cut as much as 90% and the flat bed truck makes its next delivery or heads back to the yard for another load. Re-handling of material at the building site has been eliminated, as has breakage of materials. The hand lifts enable the contractor's workmen to handle loads of material weighing up to 1000 pounds easily and quickly—the material remaining on the same skid from the time it

leaves the yard or warehouse until it is actually used on the job. The hand lifts are loaned to the contractor until the job is completed.

So great has been the demand for this unique service, that Candee, Smith and Howland, which seven months ago employed six truck drivers, today uses fifteen drivers. And, of still greater significance, the firm is today able to maintain its prices (due to this added service).



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WITH CONCAVE TROUGHS
FOR SPEED CONTROL

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The labor and time you'll save with HOHL Ramps will soon pay for their installation. These ramps can be mounted on your existing loading docks or installed in new buildings. Wherever and however you use HOHL Ramps, they'll pay you in loading efficiency.

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HANDLING BETWEEN BUILDINGS . . .

(Continued from page 76)

buildings and plants. In the accompanying illustrations are two typical exposed belts used to carry materials between processing operations in widely separated buildings. One is carrying slag, the other chips which will ultimately become kraft paper.

As an example of a belt conveyor installation kept "inside" as it handles materials between buildings, illustrated is one end of a system at the Admiral Refrigerator Plant, Galesburg, Ill. Here, completed units and components are carried 275 feet on two belt conveyors, in totally enclosed bridges, to storage in the mezzanine of another building. On the right, a boxed refrigerator is being turned on a ball transfer table. It then moves on gravity rollers to a tipping arrangement that lowers it on its back, as shown left, for travel by belt, in a bridge, over railroad tracks, to the shipping department in another building.

Space limitations restrict descriptions of these operations, but if further details are desired the editors will be glad to arrange for readers to receive more details.

For pictures and their cooperation in making this information available, FLOW thanks the following firms: Anchor Steel and Conveyor Co.; E. W. Buschman Co.; Ford Motor Co.; Goodyear Tire and Rubber Co.; Grover Company; Lamson Corporation; and Jervis B. Webb Co.



SCHEDULED YARD HANDLING . . .

(Continued from page 69)

Through time standards developed by Thew, the chief dispatcher knows how much material can be loaded onto a trailer and delivered to a destination in a two-hour period. Materials for more than one department are not mixed on one trailer, and a new trailer load is delivered to each department at least twice in every eight-hour shift.

Payloads Always Ready

When a load of raw material is delivered to a processing department, a trailer load of finished material should be ready and waiting for removal. The crane or tractor unhooks from the trailer of raw material, hooks onto the trailer of finished work, and moves it according to the dispatch ticket. The processing department then has two hours in which (1) to unload the raw material (by fork truck or overhead crane) and (2) to reload the trailer with finished products to be ready for the next trip. This two-hour standby period at the various stations explains the need for seven trailers and only three power units. The schedule is rigidly maintained. The "train" cannot be late.

"Blanks" in the Schedule Provide Flexibility

Cranes and the tractor which power the "trains" are reserved for scheduled runs as far as possible. The time table has top priority.

This schedule is, however, a flexible one. There are necessary "blanks" included in it to permit the mobile crane to handle jobs other than those required by the "train". For instance, while a trailer is being loaded with processed or finished materials, the crane is performing other scheduled duties. It is to be emphasized that the "train" schedule is not so drum-tight as to limit the kind and number of yard handling jobs the crane will do.

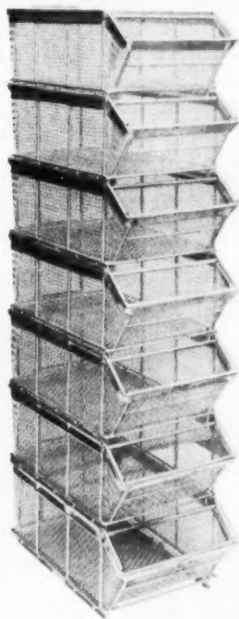
While time elapses between

scheduled moves of the "train", the mobile crane handles other jobs, some scheduled according to priority of importance and some, of necessity, being unscheduled. That is the reason for the "blanks" in the crane's daily schedule.

It loads and unloads commercial trucks. Of course, it cannot be determined when these trucks will be in the yard, and so their appearance usually takes priority

over other unscheduled jobs of the crane. It also is equipped as a clamshell to load scrap into railroad cars, unload and pile coal, clean carbide and sludge pits, and works as a crane to unload lumber. While used either as a clamshell or a crane it transfers and spots loaded and empty cars. This work is all performed in the "blanks" included in the Thew "train" schedule.

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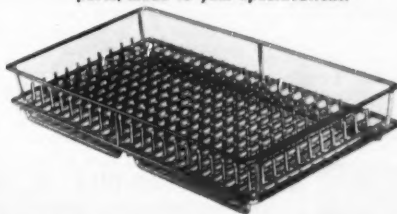


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SALES FIELD

(Continued from page 18)

Newark Caster & Truck Corp. in Newark, N. J., has been named by **Arrow Products Inc.** as exclusive distributor of its products in the northern New Jersey area.

Orton Crane & Shovel Co. has named the **Industrial Handling Associates** of Cleveland as its representative in that area. **Charles F. Yarham** and **Clem Reik** are members of the firm well-known in the materials handling equipment distribution field.

Hensel Green & Co. has appointed **Eastern Industrial Sales Co.** of 134 Huguenot St.,

New Rochelle, N. Y., as distributors for its Unitow Industrial Tractor in the eastern New York, Connecticut and western Massachusetts area. **Matthew W. Potts Sr.**, who was material handling co-ordinator for the Quartermaster Corps in 1943 and technical advisor to the Navy Bureau of Supplies and Accounts from 1944, is consulting engineer and advisor of the distributing firm. His son, **Matthew W. Potts Jr.**, is in active charge of the business.

The New York sales offices of **Standard-Knapp**, division of **Emhart Mfg. Co.**, producers of automatic packaging machinery, have been relocated at 6915 Empire State Bldg. **L. F. Shattuck** is district manager in charge of the New York office.

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Stiles Conveyors & Transmission Co. has been appointed the distributor for **Beacon Machinery Inc.** in the state of Florida. **John W. Stiles** is in charge of sales for the Miami firm and will handle Beacon's line of dock ramps, lift tables and pallet dispensers.

Ernest E. Haupt has been appointed manager of national accounts for the **B. F. Goodrich Company's** industrial sales department. Formerly sales development manager, Haupt has been with Goodrich since 1914 and has held several important posts prior to his new assignment.

The Rapids-Standard Co., Inc. of California, with offices at 444 Brannan St., San Francisco, has been appointed west coast representative for the **Raymond Corp.** Managing the firm is **C. Plin Mears**. Assistant manager is **William D. Kelly** and office manager is **Len Ward**.



a Balanced **BARROW**
for Forward-End Dumping!



★ **REINFORCED FOR HEAVY-DUTY SERVICE!**

This Sterling Wheelbarrow has a reinforced tubular steel frame with special steel nose shoe. Provides perfect balance for forward end dumping and extra strength for heavy duty service. Rugged construction includes V-shaped tray braces and 12-spoked steel wheel. Ideal for wheeling sand, scrap, castings, coal and other heavy bulk materials. Can be furnished with pneumatic or zero pressure wheel. Prompt shipment.

Write for literature.

Sterling
FOUNDRY EQUIPMENT

STERLING WHEELBARROW COMPANY • MILWAUKEE 14, WIS., U. S. A.



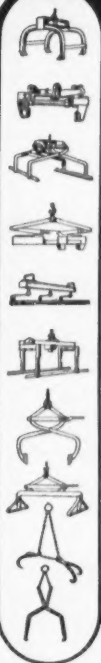
MANSAYER GRABS®

Double This Crane's Output



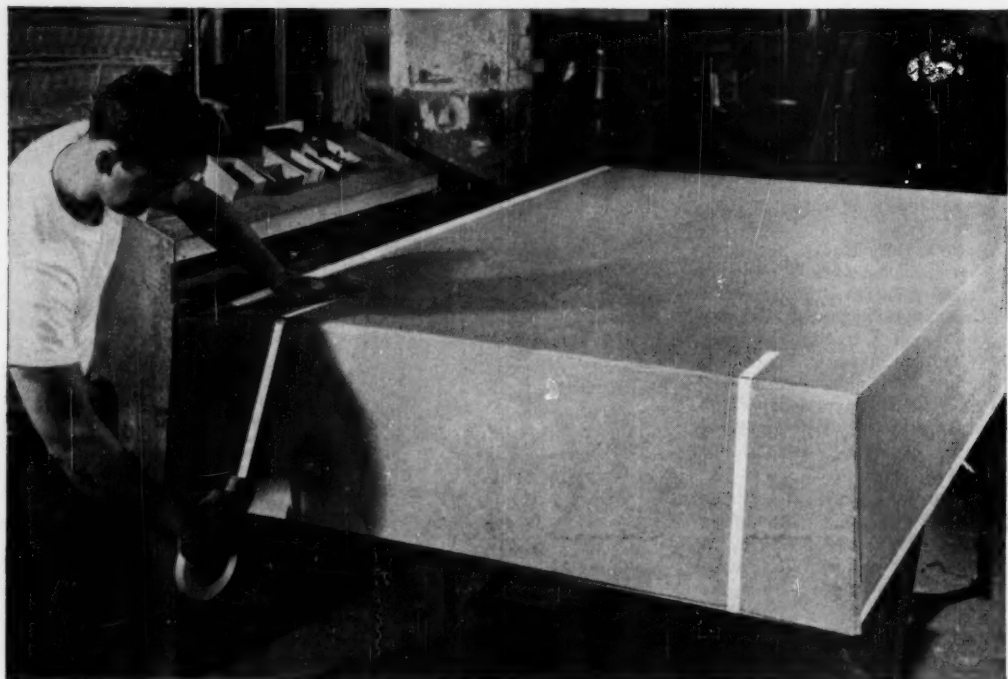
Unique in materials handling is this installation of two Mansaver Grabs on a single crane. These grabs are independently controlled from the same cab. On every trip, they can pick up two rolls at different locations (only one appears in this picture) and deliver them at a common discharge point.

This is but one of many varied problems successfully solved by Mansaver engineering. Our advice in applying Mansaver economies in your plant is available to you—without obligation. Write for catalog.



★ **MANSAYER INDUSTRIES • 3103 EAST ST., NEW HAVEN, CONN. ★**

Circle No. 96 on Reader Service Card for more information



King Koil finds...

TAPE CLOSES MATTRESS CARTONS 3 TIMES FASTER!

Super-strong "Scotch" Brand Filament Tape saves 27¢ a unit compared to old-fashioned banding that cut into cartons, damaged goods.

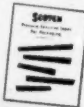
Only four short strips of "Scotch" Brand Filament Tape are needed to close huge mattress cartons for shipping at U.S. Bedding Co., St. Paul, Minnesota, makers of the King Koil mattress. No wonder they switched from sharp bands that had to completely encircle the corrugated containers! No wonder they turned to tape!

They found "Scotch" Brand Filament Tape not only faster and easier to apply, but more dependable, too. The

resilient, pressure-sensitive tape sticks tight to the job—and absorbs repeated impact shocks that would snap ordinary materials in a second!

Add up the facts: faster production, lower costs, fewer damage claims. Why don't you switch to "Scotch" Brand Filament Tape?

Your distributor can supply you in any of 3 colors and transparent, many widths and lengths. Order a supply today or write Minnesota Mining & Mfg. Co., Dept. F-93, St. Paul, Minn., on your letterhead for a copy of "Scotch" Pressure-Sensitive Tapes For Packaging."



The term "Scotch" and the plaid design are registered trademarks for the more than 300 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.



Circle No. 108 on Reader Service Card for more information

PACKAGING and SHIPPING SECTION

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DEVOTED TO THE MECHANICS OF PACKAGING AND
PREPARATION FOR SHIPPING MATERIAL HANDLING FUNCTIONS

An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to the type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it in, and you'll get complete information in a jiffy.

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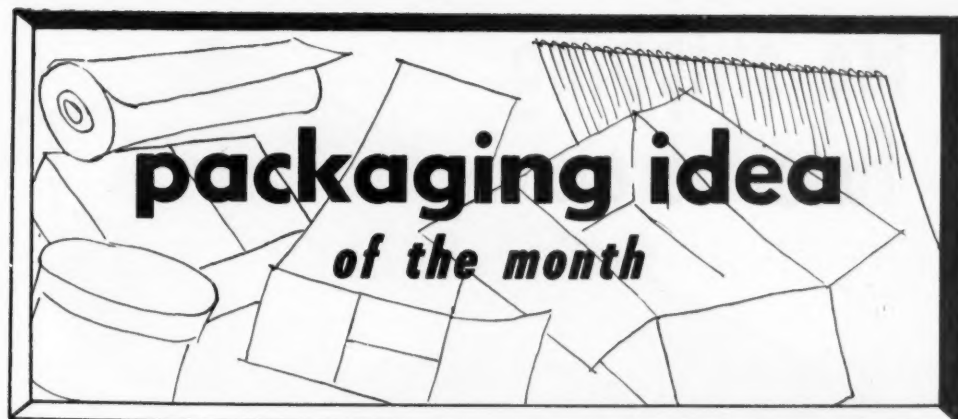
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Dessicant Storage Drum

... On Wheels

HERE'S an idea in use at Pesco Products Division of Borg-Warner Corp., which can be of great value to anyone who uses dessicants or VCI papers. Not only does it provide complete protection for those materials, but it also is a Johnny-On-The-Spot, easily moved to any desired location in the plant.

Moisture contamination is completely eliminated through correct use of the hermetically sealed drum. A gravity-locking door with positive action snaplock helps to assure protection at all times. Length-of-storage time is indefinite, as long as the drum is used with care.

A simple dolly with swivel casters at each corner provides mobility for the drum, making it possible to use one drum for several packaging operations, and also letting packers push the drum out of the way when it is not in use.



ANYWHERE IN THE PLANT, where dessicants are required, this dolly-mounted storage drum can be wheeled quickly and easily. Swivel casters at four corners of dolly provide mobility.

No shipping fuss here...



It's taped with Behr-cat®



They don't waste time at this plant, or money either. Any time they want something wrapped, bundled, or banded, they grab a roll of BEHR-CAT Strapping Tape.

Weight for weight, this filament-reinforced tape is as strong as steel, yet handles as simply as any adhesive tape. It goes on right from the roll without special tools or equipment. Grips immediately without wetting. And it's taken off just as easily.

It's soft enough to prevent injury to products and workmen . . . tough enough to withstand the severest jolts and shocks.

BEHR-CAT Strapping Tape is perfect for sealing cartons, wrapping wire coils, tubing, lumber, plate glass and banding metal parts. It'll do hundreds of time-saving jobs in your warehouse, stock and shipping areas. Give it a try now. Write Behr-Manning Corp., Troy, N. Y., Dept. FL-9

In Canada: Behr-Manning (Canada) Ltd., Brantford.

For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.



BEHR-MANNING

CORPORATION

division of NORTON Company

- COATED ABRASIVES
- SHARPENING STONES
- PRESSURE-SENSITIVE TAPES

WHAT'S NEW... in Packaging and Shipping Equipment

Wide Staple Stapling Hammer

A stapling hammer which drives a wider staple has been announced by Bostitch. Model H2BR uses a staple of .102" x .030" wire with $\frac{3}{8}$ " leg length. The Bostitch hammer has been especially designed for tacking jobs where a greater surface contact is needed. Applying insulation and lining freight cars are examples of the types of jobs which the hammer is designed to make more efficient. Increased surface contact helps prevent paper materials from tearing away from staple.

Circle No. 203 on Reader Service Card for more information



Accurate Tape Dispenser

There is no guessing at how much tape is needed to seal a box or package to comply with carrier regulations when the "88" National Electric Tapper is used, according to Nashua Corp. With this dispenser, the packager need only measure the box where it is to be taped at width and length, add 5 inches to each dimension, set the machine to the desired lengths and trip the machine. Unlimited selection of tape lengths from 6 to 70 inches, or longer are possible.

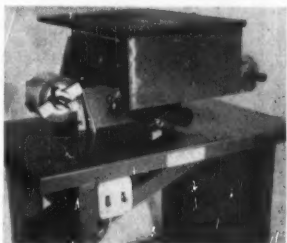
Circle No. 204 on Reader Service Card for more information



Versatile Packaging Machine

The Auto-Pak, a versatile packaging machine developed by Pak-Rapid, Inc., is said to automatically form two sheets of heat sealing material around products, seal the four sides, cut off and deliver a completely sealed package. The unit plugs into any ordinary light circuit and makes packages from one in. square by $\frac{1}{2}$ in. thick to six in. square, from practically any heat sealing web including cellophane, foil, glassine, heat sealing kraft and similar materials.

Circle No. 205 on Reader Service Card for more information

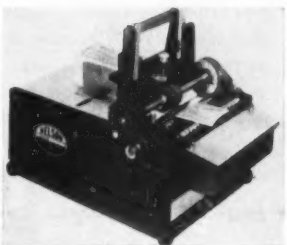


Production Line Labeler

This labeling machine is called the Nelson Auto Feed Labler Model F-5. The manufacturer, Nelson Label Machine Corp. states that in some cases, the machine can be incorporated into production lines and feeding co-ordinate by means of an electric eye. Standard feeding equipment on the Model F-5 are right and left feed levers. Feed finger can be micrometrically adjusted so that only single sheets will be fed through regardless of thickness.

Circle No. 206 on Reader Service Card for more information

(Continued on page 146)





Kitchen wall, sink and base cabinets like these are shipped in corrugated cartons closed by International Staplers.

with International Carton Stapling Machines



\$28,000 saved in a year ... \$112,000 in the last four years! Unbelievable? Chester C. Cain, executive vice president of Harrison Steel Cabinet Co., Chicago, found it hard to believe, too. But read what he has to say:

"Four years ago we installed two International Retractable Anvil Stapling Machines to close corrugated shipping cartons for our line of kitchen wall cabinets, sink cabinets and base cabinets. We staple the tops and bottoms simultaneously after the cabinets are in the cartons. The machines ... one for regular production ... one for overflow production ... cost \$1,640 each.

"A year later, figures showed our packaging costs had gone down \$28,000. Working conditions were easier for our men ... and the equipment had paid for itself in only a month and a half.

"Formerly, we packaged about 300 units each 8-hour day, using 13 or 14 men to set up boxes, seal the bottoms, place cabinets inside, and seal the tops.

"Now with only 6 men ... one to operate the stapler, and the rest to pack and feed, we're closing 600 cartons each 8-hour day ... twice as many, and the closures are better."

If you ship in corrugated or fibre containers, an International Retractable Anvil Stapling Machine can close them better, faster and more economically. Write for detailed information.

a seal of security



INTERNATIONAL STAPLING MACHINES

International Staple & Machine Company

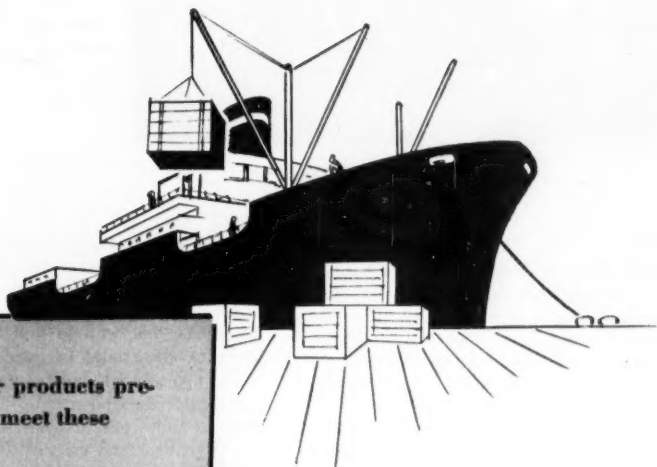
808 East Herrin Street, Herrin, Illinois

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FLOW • SEPTEMBER, 1953

What To Consider When You
Package Your Products for . . .

Overseas Shipment



Are your products prepared to meet these hazards?

1. Rough Handling at piers
2. Heavy seas
3. Poor unloading conditions at destinations
4. Cold, heat, humidity, salt air
5. Improper cargo stowage
6. Theft and pilferage
7. Crowded storage and warehousing conditions
8. Misunderstood addresses, identification and other markings

PROBLEMS involved in preparing products for export shipment are, almost without exception, more plentiful, more serious in their damaging nature, and considerably harder to lick than any confronted in packaging and shipping domestically.

Generally, distances traveled in export are great, and no trip is ever completed without a number of hazards being met along the way. A package headed overseas can be expected to experience a far greater number of handlings than one which has a destination within the boundaries of the United States . . . and the handlings will be far rougher, you can bet.

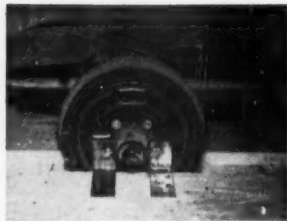
Salt laden atmosphere, both on the seas, and during storage on docks can be damaging to the incorrectly packaged product. A package which has been carefully prepared and clearly marked . . . in English . . . may never find its destination, if it falls into the hands of stevedores who only understand another language.

Theft and pilferage are practiced extensively in every port in the world, and a poorly packaged product actually invites tampering.

(More on next page)



PACKAGING FOR



MOBILE BLOOD BANK is skidded prior to boxing for export shipment (left). Photo above illustrates way to anchor wheels to skids.

What Defense?

In all, overseas shipment problems present a discouraging situation to manufacturers who are concerned about the transportation of products which they have carefully handled through the many stages of production. There almost seems to be no defense . . . exporting apparently can't help but be unreliable and costly.

Actually, there is much which can be accomplished to insure safe arrival of products . . . and at a minimum cost. An export packaging department set up in your own plant can provide a method of studying and solving all the problems involved. For companies who do not have a volume of exports which is great enough

to justify a separate department, there are a number of contract packers, located throughout the country, who can put expert package designers to work on every problem. Whatever way you find best suited to your operations, you will do well to understand all the problems which must be considered.

The first step in planning an export package is to analyze the characteristics of the products themselves. Physical properties of loads, including weight, size, fragility, shape and capacity for supporting the container are the first factors influencing proper shipping container specifications. All items can be placed into one of three categories: Easy; Average; or Difficult loads.

Here Are a Few Foreign Phrases You May

ENGLISH	DANISH	FINNISH	FRENCH	GERMAN
HANDLE WITH CARE	FORSIGTIG	VAROYASTI	ATTENTION	VORSICHT
KEEP DRY	ØIK OPBEVARES PÅ ET TØRT STED	PIDÄ KUIVAKA	PROTEGER CONTRE HUMIDITE	VOR NAESSE SCHUTZEN
USE NO HOOKS	ANVENDT IKKE KROGE	ÄLÄ KAYTTÄ KOUKUKUJA	MANIER SANS CRAMPONS	OHNE HAKEN HANDHABEN
THIS SIDE UP	DENNE SIDE OPAD	TÄMÄ PUOLI YLÖSPÄIN	CETTE FACE EN HAUT	DIESE SEITE OBEN
TOP	OP	KANSI	DESSUS	OBERSSEITE
WEIGHT	VEGT	PAIVO	POIDS	GEWICHT
NET	NETTO	NETTO	NET	NETTO
GROSS	BRUTTO	BRUTTO	BRUT	BRUTTO
TARE	TARA	TÄÄRA	TARE	TARA
GLASS	GLAS	LASIA	VERRE	GLAS
FRAGILE	SÄRDELICHT	SÄRKYVÄÄ	FRAGILE	ZERBRUCHLICH
KEEP IN COOL PLACE	ØIK OPBEVARES PÅ ET KØLIGT STED	SÄILYTETTÄVÄ VIILEÄSSÄ PAIKASSA	GARDER EN LIEU FRAIS	KÜHL AUFGEBWAHREN
OPEN HERE	ÅBNES HER	AVATAAN TÄSTÄ	OUVRIR ICI	HIER ÖFFNEN

OVERSEAS SHIPMENT

Continued

Easy Loads—Made up of Products such as clothing, textiles, cans or cartons packed in an inner container completely filling the outer shipping box; items packed in wood or metal chests which in turn are packed in the outer container, etc. They are products which have low or moderate density and are not easily damaged by puncture or shock and do not shift or flow within the package.

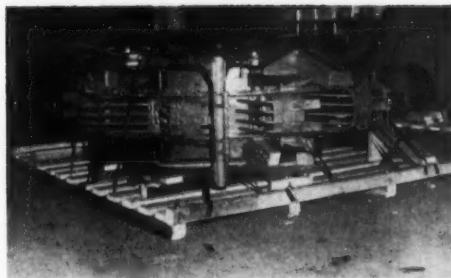
Average Loads—Contents made up of moderately concentrated articles which are packed directly into the outer shipping container, providing support at several points on each face of the outside box, or are subjected to an intermediate form of packing. Includes products like hardware in cartons, paints and oils in metal cans, small electrical appliances, individually cushioned processed food in glass containers, etc.

Difficult Loads—Items which require a high degree of protection, from puncture, shock or distortion of the container, or items which do not support the faces of the shipping box. Includes hardware in partially filled cartons, porcelain insulators packed in bulk, castings, heavy stampings, forgings, machine parts, coiled metal tubing, heavy mirrors, large gears, crank shafts and explosives.

Packaging Methods

One of the important concerns of the commercial exporter is the ultimate cubage of the shipping package, since ocean freight on most manufactured goods is promulgated on cubage. The smaller the shipping package, the lower the freight; hence the lower the delivered cost to the foreign buyer.

A military development which has been adopted to great advantage in commercial shipping is the twin-



DIGGING WHEEL for ditcher is first mounted on skid and firmly anchored in place with steel straps. All weight of unit is placed on this skid, and cover merely fits unit to provide protection from outside damage.

unit pack for automotive vehicles. By dis-assembling trucks down to their bare chassis, it is possible to reduce cubage of two set-up vehicles to the cubage of one, reducing shipping costs considerably.

In the export trade, the foreign buyer is faced with a shortage of American dollars. By having equipment such as trucks, cranes etc. twin-unit packed, he saves 50% of his ocean freight (which he must pay in American dollars.) Thus, with the savings, he is able to import more trucks. Re-assembly at the destination will probably be a costly matter, but the foreign buyer is able to pay for that expense in his own currency (which he has in relative abundance).

During and since World War II, the Military has developed innumerable packing techniques and methods which industry has been able to utilize either completely or with modification. Conversely, industry has been responsible for the creation of many packing methods from which the Military has benefited.

Rust inhibitors, ranging from hard-drying compounds for use on rough hardware to soft greases for the protection of fine machined parts with close

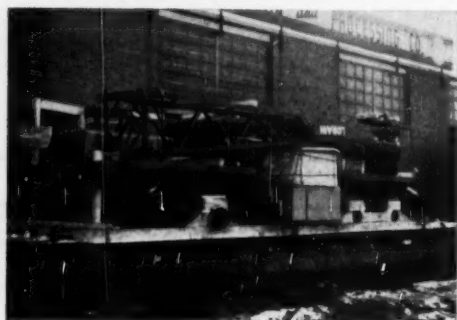
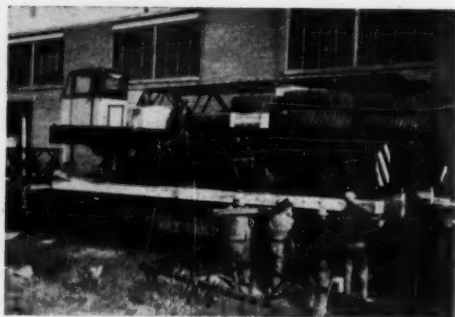
(More on next page)

Have To Use In Marking Export Packages

ITALIAN	NORWEGIAN	PORTUGUESE	SPANISH	SWEDISH
FRAGILE	FORSIKTIG	TRATAR COM CUIDADO	MANEJARSE CON CUIDADO	VARSAMT
PRESERVARE DALL'UMIDITA'	OPPREVARES PÅ TØRT STED	CONSERVAR EM LUGAR SECO	MANTENGASE SECO	FÖRVARAS TORRT
MANIPOLARE SENZA USARE UNCINI	BRUK IKKE KROKER	NÃO EMPREGUE GANCHOS	NO USEN GANCHOS	BEGAGNA INGA KROKAR
LATO DA MANTENERE INALTO	DENNE SIDE OPP	ESTE LADO PARA CIMA	ESTE LADO ARRIBA	DENNA SIDA UPP
COPERCIO	DENNE SIDE OPP	PARTI DE CIMA	TAPA	DENNA SIDA UPP
PESO	VEKT	PESO	PESO	VIKT
NETTO	NETTO	PESO LIQUIDO	NETO	NETTO
LORDO	BRUTTO	PESO BRUTO	BRUTO	BRUTTO
TARA	TARA	TARA	TARA	TARA
VETRO	GLASS	VIDRIO	VIDRIO	GLAS
FRAGILE	FORSIKTIG GLASS	FRÁGIL	FRÁGIL	ÖMTÄLIGT
CONSERVARE IN LUOGO FRESCO	OPPREVARES PÅ KØLDT STED	DEVE SER GUARDADO EM LUGAR FRESCO	MANTENGASE EN LUGAR FRESCO	FÖRVARAS KALLT
APRIRE DA QUESTA PARTE	ÅPNES HER	ABRA AQUI	ABRASE AQUI	ÖPPNAS HÄR

OVERSEAS SHIPMENT

Continued



PACKAGING A CRANE

MOBILE CRANE destined for use overseas must be dismantled and skidded in as small a cube as possible for transportation. In top photo, wheels of crane have been removed and placed on top, and skid is being built up underneath. In middle photo, cab of unit has been removed and bolted to skid and boom has been laid across entire unit. Bottom photo shows completed package with entire crane in extremely small space.

tolerances have been created. Dehydrated packaging of various kinds, utilizing moisture-vapor proof barriers have been developed. Many fine answers to the problems involved in packaging for overseas shipment have come from close cooperation between government agencies and manufacturers.

Many companies who have packaged for the Military in accordance with military specifications have utilized identical or similar techniques in packaging their commercial products for export shipment. For example, several manufacturers of typewriters are now packaging their product for commercial overseas shipment in accordance with a modified Method 11a or 11b of Specification MIL-P-116B.

In this method, the typewriter is bolted through a moisture vapor-proof barrier consisting of cloth backed aluminum foil or plastic to a base which becomes, in turn, the bottom of the final shipping container. The barrier is brought up about the typewriter, a package of dehydrant is secured to the machine, and after a moderate withdrawal of air, the barrier is heat sealed. In this condition, the typewriter can be shipped into practically any atmosphere in the world, warehoused for a year or so without any deterioration whatsoever.

Pilfer-proof containers of many sorts have been designed in attempts to cut a practice in foreign ports which has cost American exporters staggering sums in both dollars and in prestige. Boxes have been designed so that they cannot be opened and resealed during their journey without leaving immediate visible evidence that tampering has occurred.

Interior Packaging

When considering safe and correct packaging of export shipments, there are two definite rules with respect to interior packing:

1. Fragile and delicate articles such as surgical instruments, bottled goods, small electronic parts and light bulbs must be separated from one another within the container by use of dividers or cushioning material. This rule also applies to larger, light-weight and finely finished articles such as furniture pieces, electrical appliances and enamelware packed two or more to a container and to single items consisting of two or more parts or subassemblies.
2. Other types of finely finished articles which are large and packed one to a container such as desks, filing cabinets, refrigerators and stoves, must be blocked or braced to ride free of all contact with container walls. They must be so anchored within the shipping container that regardless of what position the container assumes when it comes to

rest, the items will be supported entirely upon solid parts or surfaces with no weight resting upon points or surfaces subject to breakage, scuffing or abrasion.

Ten Commandments

As a result of a study of export packaging practices, the National Wooden Box Association devised a set of ten do's and don'ts of export packaging. They sum up most of the problems which confront these who would ship products overseas, and provide valuable reminders to insure a complete job of packaging.

1. Choose the proper package for the job . . . don't underpack and don't overpack.
2. Protect the commodity from the sweat of the ship's hold and the effects of climatic extremes, from origin to destination.
3. Protect contents from contact with water . . . both fresh and salt, and from oil.
4. Remember that modes and methods of transportation in many parts of the world are not like those at home. Your product may be handled by mule-pack, camel-pack, ox-cart, canoe, open lighter or many other ways either long outmoded or even unheard of in the United States.
5. Choose a package that can be readily stacked, and one that does not require preference in stowage or handling.
6. Remember that your package will receive about five times more handlings from producer to consumer than it does in the domestic trade.
7. Protect your merchandise against that scourge of all shippers, namely "hidden damage", by giving as much attention to the interior packing as the exterior. Secure it from within to prevent movement.
8. Protect your shipment against theft and pilferage. Poor packaging is as good as an engraved invitation to a thief or to a man who is hungry or ill-clothed.

(Continued on page 167)



Security of Unit-Pack Assured

Through the magic of Signode Steel Strapping Unitizing Methods!

Here you see how 160 units, formerly packaged in many containers, were packed on ONE easily handled pallet-pack—the adaption by Signode of a *basic* unitizing method—to save containers, man power, and time, and to prevent pilferage!

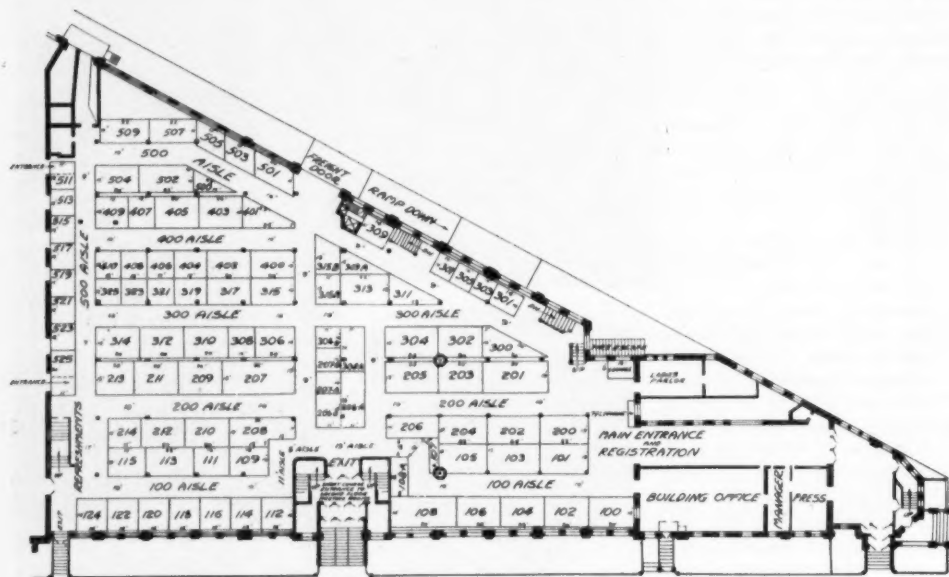
The chances are that your products, entirely or in part, can be handled and shipped more economically and securely by applying the principles of a *basic* unit-pack method. Why not find out now? Ask to have a Signode fieldman call.

Write Signode Steel Strapping Co., 2618 N. Western Ave., Chicago 47, Ill. Offices coast to coast. In Canada: Canadian Steel Strapping Co., Ltd. Foreign subsidiaries and distributors worldwide.

SIGNODE Steel Strapping Co.

SEND FOR FOLDER SHOWING 6 BASIC WAYS OF UNITIZING
Circle No. 140 on Reader Service Card for more information

8th Annual Industrial Packaging



Company	Space No.	Company	Space No.	Company	Space No.
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Clinch-Tite Pallet Co.	505	Markem Machine Co.	304	Universal Tube & Container Co.	113B
Coniferal Can Co. Inc.	100	Market Forge Co.	208	Weber Addressing Machine Co. 517	
Conveyor Specialty Co. Inc.	310	Marsh Stencil Machine Co.	500	Wirebound Box Manufacturers Assn.	315
Davison Chemical Corp.	504	McDonough-Austin, Inc.	501	Wood Conversion Co.	321
Derby Sealers, Inc.	700	Miller Wrapper & Sealing Machine Co.	201	Yale & Towne Mfg. Co.	102-4
Doughboy Industries, Inc.	211	Moto-Truc Co.	315-A-315-B		
Eastman Chemical Prods. Inc.	302	National Metal Edge Box Co.	314		
Thomas A. Edison, Inc.	206	National Wooden Box Association	311		
Elberta Crate & Box Co.	410	New England Industrial Truck, Inc.	118		
Filtrol Corp.	307				
FLOW	521				

and Material Handling Exposition

Reported to be the biggest show yet in this series, the 8th exposition of the Society of Industrial Packaging and Material Handling Engineers will be held in Mechanics Building, Boston, on Oct. 20, 21, 22. Actually it will be a three-fold affair, with: (1) an exposition; (2) short course program; and (3) packaging competition.

1. Thomas W. Regan, vice-president of General Box Co. in charge of the Winchendon, Mass. plant has been appointed chairman of the exposition proper by Stanley Price, national president of the sponsoring society. Under his guidance and with the aid of C. J. Carney, Jr., managing director, you can expect it to be an outstanding showing on a national scale of products, materials, services and equipment in the industrial packaging and material handling fields. Present plans call for a series of "live" demonstrations of equipment and materials to supplement the regular stationary exhibits. Latest reports are that the exposition space has been a complete sell-out which indicates that a wide variety of valuable information to help solve material handling and packaging problems will be made available.



Thomas W. Regan

2. Concurrently with the exposition, a technical short course program will be held in the Mechanics Building, under the co-sponsorship of SIPMHE and of the Mechanical Engineering Department of Massachusetts Institute of Technology. Under the chairmanship of John W. Kraus of Thompson Products, Inc., the program will present a variety of topics of interest to both junior and senior material handling and packaging engineers. A special "Packaging Fundamentals" course (restricted to 100 enrollments) will consist of sessions on elementary problems of protective packaging and material handling. Advanced sessions will be concerned with the same type of subjects but in an advanced approach to the executive level. The curricula have been designed so that the elementary and advanced segments of the course will join together for closing sessions.



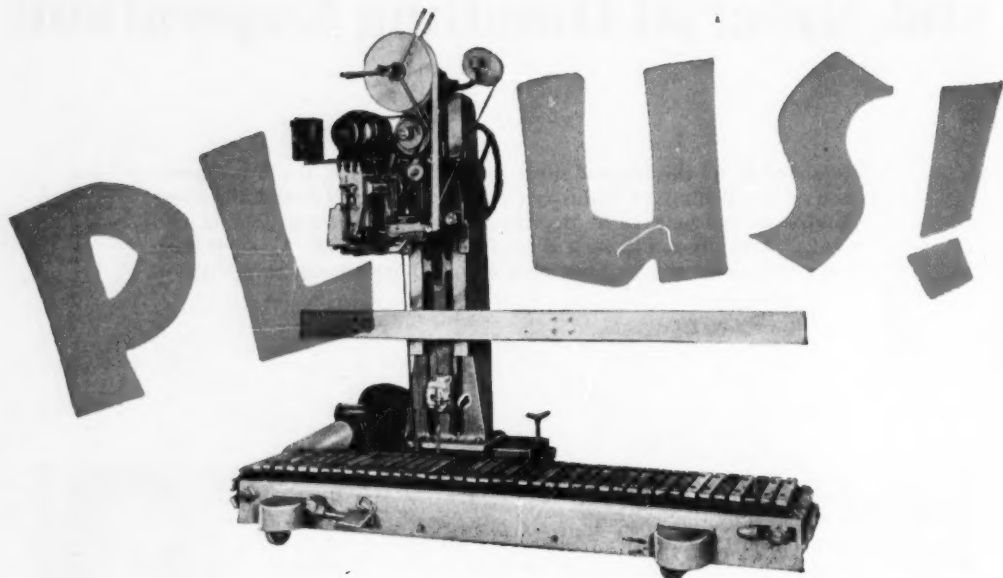
John W. Kraus

3. Chairman of the Eighth annual National Protective Packaging and Material Handling Competition is Ray A. Mantz of the Material Handling Product Protection Laboratory of Manufacturing Research at International Harvester Co. Entries will be divided into seven sections as follows: Corrugated or solid fibre boxes; nailed wood boxes and crates, wirebound boxes and crates; cleated panel boxes; "general" (other types of containers); export packages; and material handling as it relates to production, warehousing, distribution and transportation. Each group will be judged by a committee of specialists in its field with individual prizes given within the groups, in the form of cash awards, ribbons, certificates, and plaques. Also, two special awards will be made . . . the Harold Jackson Award and the Irving J. Stoller Award Trophies.



Ray A. Mantz

The Bag Closing Machine With a Real



There's an extra **PLUS** built into every model ET BAGPAKER delivered... the **PLUS** of assured day-in, day-out top performance.

The Model ET ties in with your existing filling and weighing equipment... closes open-mouth, multiwall paper bags semi-automatically... gives you sift-free, stronger, more economical bag closures with the famous BAGPAK cushion stitch.

You can count on the model ET BAGPAKER to give you faster packaging and better product protection... at lower cost.



Model ET applies famous "Cushion-Stitch" over dry tape for sift-proof closure. Model E-I applies "Cushion-Stitch" only for use where sift-proofing is not essential.



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BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston • Chicago • Cleveland • Denver • Detroit • Kansas City, Kansas • Los Angeles • Minneapolis • New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • Worcester, C. • In Canada: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto.

BAGPAK DIVISION

Check these Economy and Efficiency Features:

- + Closes 15 filled bags a minute.
- + Fast adjustment to bags from 25 to 100 lbs.
- + Completely portable—rolls to any packaging station.
- + Bag starts and stops serving head when equipped with automatic control.
- + Hoepner No. 150 Heavy Duty Sewing Head with automatic brake to prevent "coasting".

Bagpackers available include models A, D-A, ET, E-I and F-I—with capacities from 60 tons per hour for the Model "A" to the small F-I where large volume is not required.

Write today for details, drawings and capacities to Bagpak Division, International Paper Co., 220 E. 42nd St., N.Y. 17, N.Y., Dept. L-14.

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It's your money your scales are measuring.
You will find it to your advantage to keep
them working properly and have . . .

Healthy Scales

by Arthur Sanders*

FLOW'S article on "How Much of Your Products Are You Giving Away?" was immensely interesting in my opinion. It brought a much-neglected subject into the open . . . that inaccurate weighing can lead to fantastic losses. In many actual cases, such losses have proven a shortcut to the bankruptcy court. At best, it always results in a heavy loss of profit.

From our Association's files, I have collected some examples and case histories of the perils of inaccurate weighing. They are graphic examples of what can happen in the packaging and processing of products when the processor forgets to check his scales.

A concrete products company, dissatisfied with its weighing operation called in scale engineers to make a study. An investigation showed there was so much friction on the scale which the company used, that it took the weight of one man placed on the load receiving element to get the beam to move. That explained the loss of \$2000 worth of cement every month.

Too many people overlook the fact that pounds and ounces on the scale are really dollars and cents on the profit or loss side of the ledger. And bulky items like concrete aren't the only things which are likely to be given away in overweight.

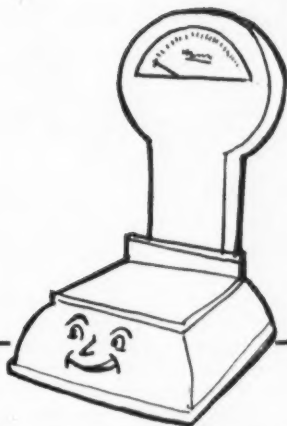
One prominent scale executive estimates that the loss of highly expensive flower seeds by packers runs into many thousands of dollars through overweight.

Small errors in weighing accuracy can cause enormous financial losses. Fred Blumers, Chief Methods Engineer of General Mills, Inc., of Minneapolis, pointed this up in remarks before the National Scale Men's Association at that group's annual meeting.

On a 7 ounce package of breakfast food, Mr. Blumers said, if a single scale gives overweight by as little as one-eighth ounce, the loss would amount to more than \$100,000 in a year. In packages of flour, an

(Continued on page 141)

*In April, 1953, FLOW published an article on the subject, "How Much of Your Products Do You Give Away?" As a sequel, Arthur Sanders, secretary of the National Association of Scale Manufacturers has prepared the above article.



Listed below, are five points you should constantly keep in mind if you want your scales to be accurate at all times.



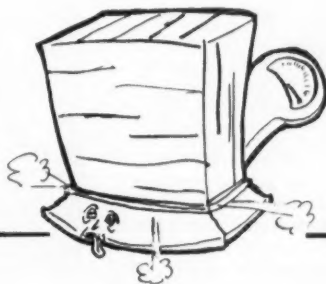
1. Don't permit tampering by unauthorized operators or amateur would-be mechanics.

2. Scales are delicate. Never drop loads on them.

3. Modernize. When a scale is old and past its usefulness, replace it.

4. Have your scales tested frequently.

5. Don't use scales which are too light or too heavy for the job.



For plants with Varying Odd-Lot Shipments . . .

A Push-Button Corrugated

AT the Kearny, N. J. plant of Western Electric Co., tailor-made shipping cartons of almost any size and shape for special requirements are being turned out economically merely by the pushing of buttons. Box making equipment of the type used in this plant provides an ideal answer to the problems of manufacturing plants handling odd-lot shipments.

At Western Electric, vast inventories of boxes of assorted sizes which might otherwise be necessary have been eliminated. The box making machine used by that company makes containers exactly to fit each product shipped, doing away with the necessity for over-packing just to fill space in "almost right" containers.

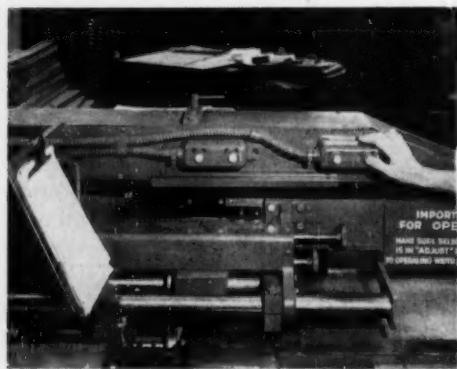
Certain standard sizes of boxes purchased for packaging specific items or frequently used combinations

of items have by no means been discarded, however. Those are still acquired most economically from regular suppliers of corrugated boxes. The equipment does provide an excellent means for producing at low relative cost, small lot quantities of containers.

Western Electric Co.'s Kearny Plant supplies the myriad of items of electrical and electronic equipment required by telephone companies throughout the country . . . everything from hand sets to switchboard units containing miles of wire and millions of parts. In all, the plant manufactures about 32,000 different items and uses 7000 package designs to ship various combinations of these products. Sizes of containers range from 2" x 2" x 2" up to 147" x 191½" x 79¼".

At present, Western Electric uses the machine for approximately 500 different box sizes. Ninety per-cent of this production is of the regular slotted carton (RSC) type, with the remaining 10% divided among a dozen other styles and 10 or more types of details of which the machine is capable. All this is obtained from 22 different size sheets of corrugated board of different

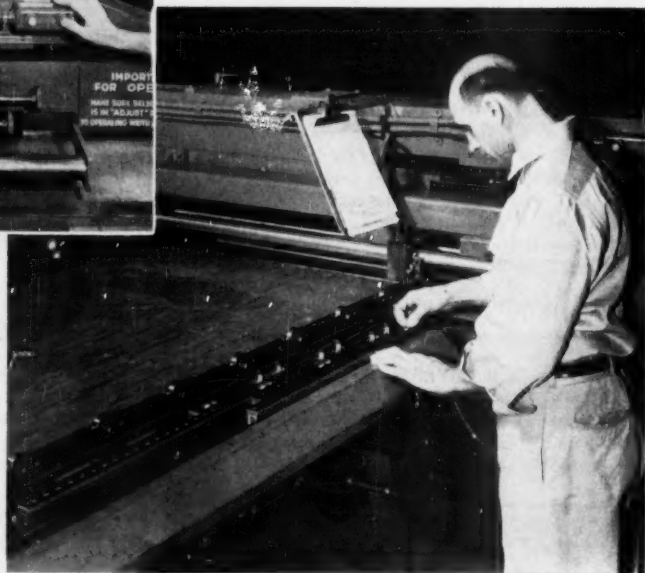
(Continued on page 164)



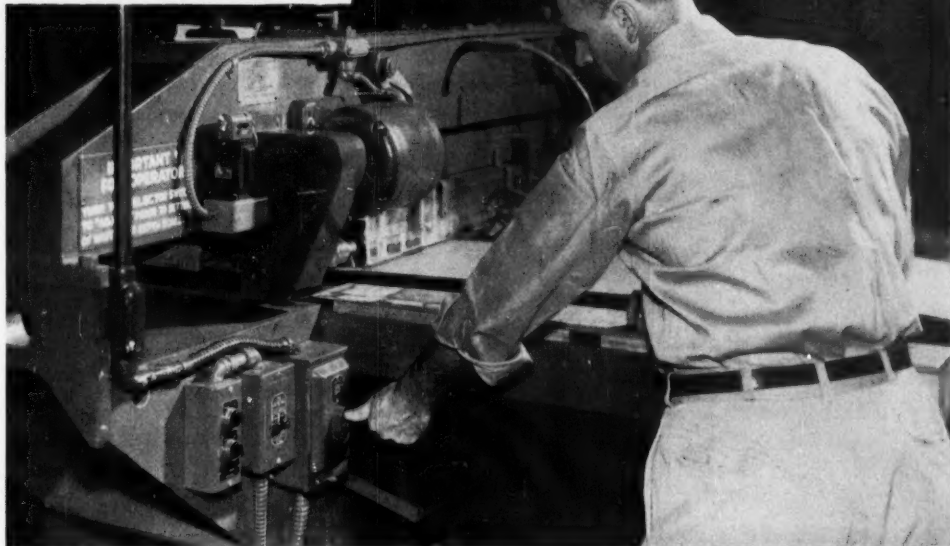
Making Adjustments . . .

ELECTRICAL CONTROLS
(above) move slitter and scoring rolls according to box depth and flap width dimensions called for in specs.

LIMIT SWITCH TRIPPERS
(right) can be adjusted accurately for cutting and scoring of boxes which are made.

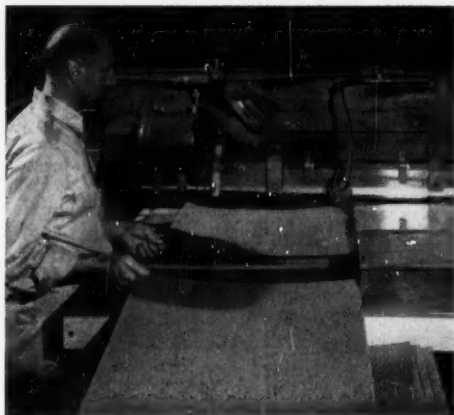


Box Maker

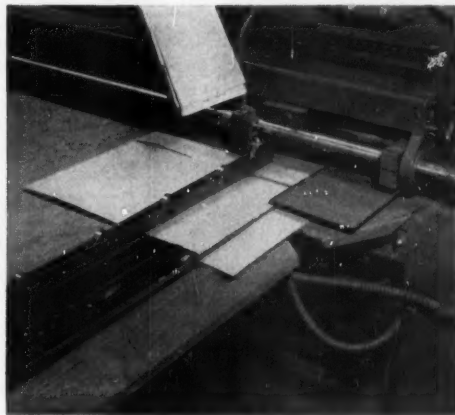


OVER ONE MILLION CARTONS can be made in one year with the box-maker being operated above. This view is of the feed end of the machine. Operator is pressing "run" button after having adjusted machine

correctly for size and style of container desired. During adjustment time, an "Adjust" button had been pressed as a safety control measure which inactivates the machine during the time required for adjustment.

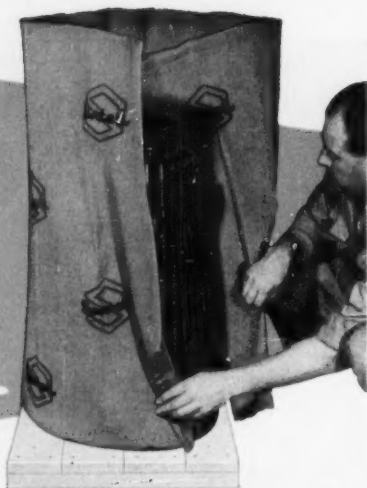


FEEDING CORRUGATED STOCK into the box making machine. As long as a board is fed in at the end of each cycle, the machine will continue to operate. If, at the end of a cycle, no board is ready for feed, machine stops and awaits feeding of more materials.



CUTTING FIRST SLOTS and making first body scores. Leading edge of board has hit second one of first pair of limit switch trippers, stopping feed rolls completely for cutting and scoring operation. Operation continues automatically to next cutting and scoring operation.

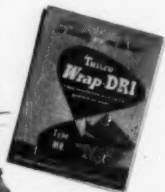
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products
with protective
papers
that *Sell*



**PRINT DECORATING
THILCO WRAP-DRI
AVERAGES ONLY**

30¢ per M. sq. feet!

Here's heavy duty wrapping at work — and doing double duty! Weatherproof WRAP-DRI that protects from the ravages of sun, rain, heat and cold — and, at the same time performs the duties of a good-will sales and advertising ambassador. Brand name identification by PRINT-DECORATING is the answer and only Thilco provides it at such amazingly low cost! That's because WRAP-DRI is printed at the same time of manufacture. Many other features such as widths up to 10 feet wide and numerous special treatments are also yours with WRAP-DRI — Extra wet strength, mold-proofing, flame-proofing, creping etc.; plus a broad range of base papers, reinforcements and laminated combinations to impart the necessary characteristics for "tailor-made" protection. But seeing is believing—Write for interesting Print Decorated samples and folder which describes WRAP-DRI in its regular and newest dispersed fibre reinforced types.



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Functional Papers FOR PROTECTION THAT COUNTS!

DETROIT • MINNEAPOLIS

THILMANY PULP & PAPER COMPANY
KAUKAUNA, WISCONSIN

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**PACKAGING & SHIPPING
USEFUL LITERATURE**

Box Machine:

You can lower your packaging costs with a Rite-Size box machine, says a bulletin from Colt's Manufacturing Company. It produces any size or style box, in small lots or in quantities up to 1,000,000 per year per shift. The bulletin also points out that a complete dimensional change can be made in less than 1½ minutes.

Circle 240 on Reader Service Card

**Paper Shipping Sack
Manual:**

The Paper Shipping Sack Manufacturers' Association, Inc., has produced a valuable 40-page manual covering recommended practice for handling, storage and shipment of material packed in paper shipping sacks. Practically everything that is worth knowing about paper shipping sacks is included in this manual.

Circle 241 on Reader Service Card

Custom Designed Containers:

Literature describing custom designed heavy-duty shipping containers is available from International Paper Company, Container Division. Featured is a specially designed cap and tube shipping container which is said to enable faster handling and closer stacking.

Circle 242 on Reader Service Card

Strapping Combination:

A. J. Gerrard & Company offers a brochure which describes its Bulkholder Combination Units. A complete heavy-duty strapping outfit, this equipment handles bundling, crating, palletizing and carload bracing. It consists of one stretcher, one sealer, one strap cutter, one dispensing reel, strapping and seals.

Circle 243 on Reader Service Card

Arcuate Wire Stitching:

Acme Steel Company announces the availability of a 4-page, two-



Cuts
Costs
70%

Man with stapler beats man with glue 10 to 1

This actual race took place in a rubber products plant. The man at left sealed cartons with glue. His companion used a Bostitch Autoclench Stapler, and averaged 10 times more cartons per hour. The manager happily reports savings of 70% in time and materials.

His shipping men are happy too. Gone are the gluepots, dripping brushes, spattered aprons. No more "glue-cake" on floor or hand truck. No "weighting" of sticky carton flaps. Cartons go off faster, cleaner, and can be re-used. And as the men are paid on piecework, take-home pay is bigger.

The Autoclench is just one of 800 kinds of Bostitch staplers that trim time and costs on thousands of different fastening jobs in factory and office. To help you fit the right stapler to the right job, Bostitch has 325 Economy Men working out of 123 cities in the U. S. and Canada—by far the largest and best trained group of its kind.

Check over your own fastening methods with your nearest Economy Man. There's no obligation. He'll be glad to tell you honestly whether stapling can save you money.

Look up "Bostitch" in your phone directory or write us.

**FASTEN IT BETTER
AND FASTER WITH**

BOSTITCH®
STAPLERS AND STAPLES

FREE time and money saving bulletins tell how stapling can cut your costs.

BOSTITCH, 709 Mechanic St., Westerly, R. I.

I want to fasten:

☐ cartons ☐ plastics ☐ wood ☐ leather
☐ rubber ☐ light metals ☐ fabric ☐ roofing

Name

Company

Address

City Zone State

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When bags are unitized on Mead

CHESTNUT POKE-PAK



**One man with a fork truck
can unload a full car
in less than two hours**

You have much to gain by insisting that your shippers unitize their loads on MEAD Chestnut Poke-Pak. The resultant quick and easy unloading eliminates costly demurrage. You have no wooden pallets to store and return—Poke-Pak is so inexpensive it is expendable. You can speed up checking and inventory by counting units of 40 to 70 bags rather than single bags. Merchandise reaches you in

much better condition, with less breakage or damage, for there are no nails or splinters in Poke-Pak.

Shippers can reduce car-lining costs as much as 85 percent, save on freight and dunnage, reduce claims, save on cost and storage of wooden pallets. Write for descriptive illustrated folder giving all advantages of MEAD Chestnut Poke-Pak to both shipper and receiver.

MEAD BOARD SALES, INC.

LYNCHBURG 3, VA.

Offices: Cincinnati • Chicago • Newark

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color bulletin describing the new method of arcuate wire stitching. The bulletin describes how a wire stitching machine puts an arc in a cross-section of flat wire and then drives and clinches the stitch at high speed. The bulletin is designated No. AD-130.

Circle 244 on Reader Service Card

Bulk Packing System:

A 6-page bulletin, offered by Richardson Scale Company, pictures and describes the company's bulk packing and handling system. In this system, chemical and food products are weighed and packed in giant cardboard boxes at rates up to 20 tons per hour. It tells how the system operates, explaining the loading, packing, strapping and unloading processes in detail.

Circle 245 on Reader Service Card

Paper Packing Material:

Cushion Pack, a specially-constructed paper packing material developed in Europe, is now manufactured in the United States by Cushion Pack, Inc., and is described in literature available from this company. Free samples and price lists also are available.

Circle 246 on Reader Service Card

Pressure Sensitive Tape:

Hampton Manufacturing Company offers its latest sales brochure which lists the uses for the various pressure sensitive industrial tapes manufactured by this company. The brochure also contains sample strips of the different types of tape available.

Circle 247 on Reader Service Card

Saving With Strapping:

The current issue of Confab, Acme Steel Company's 12-page quarterly publication devoted to the latest cost-saving applications of steel strapping and wire stitching, is available. This issue contains six feature articles, three short photo-caption stories, an announcement of Acme Steel's industry-wide steel strapping contest, and an editorial, "Rebirth of Freedom of Opportunity".

Circle 248 on Reader Service Card

(Continued on page 158)

HEALTHY SCALES . . .

(Continued from page 135)

error of one-half ounce overweight would amount to \$500,000 in a year.

Recently, Hudson H. Wright, Weights and Measures Sealer of Wayne County, New York, gave a report on an informal survey he had made on the production lines of several small processors in his county. Mr. Wright said that in the last year he discovered 81 scales making sizeable errors in weighing. Using a little simple arithmetic, by calculating product flow along the lines, he arrived at the startling figure of \$543,000 lost to buyers and sellers through these errors.

Informal discussions with many sealers and weighing officials from many states at the last National Conference on Weights and Measures leads to the conclusion that most scales, after long usage, are apt to be "slow," that is, reflect less than the true weight indication, rather than "fast" (over-indication).

Like Old Man River

An incorrect scale, like Old Man River, just keeps rolling along. Friction, corrosion, dirt, rough treatment, and insecure or incorrect installations are the greatest enemies of accuracy in scales. There is no piece of machinery in which friction must be eliminated to the degree necessary in a scale to insure accurate operation. There is no outside power, such as gasoline or electric motor, to operate a scale. It has only the gravity force of the object being weighed and its own action to cause it to function properly.

A little common sense will make obvious the menace of friction in weighing. As the knife-edges of the pivot and bearing surfaces become worn with long usage, friction increases beyond any allowable tolerance. (It must be kept in mind that there is some friction in all scales.) More often than not, friction operates to the disadvan-

\$20,000 saved yearly in packing gas meters



Costs were slashed from \$25,000 to less than \$5,000 annually at American Meter Co., Philadelphia by developing a new method of packing meters using the Stanley Steel Strapping System. Instead of packing them in conventional crates and boxes, gas meters are now steel-strapped between two wooden frames using plain boards as corner pieces. This method is fast, easy, economical. No nails are

needed. Lumber is reused in return shipments to the company.

Very substantial savings are being made with the Stanley Steel Strapping System in packing and shipping products of every type. Why not see how much the Stanley Man can save you? He'll install the Stanley Steel Strapping System on a 30-day trial. No obligation. Just mail the coupon below.

STANLEY STEEL STRAPPING SYSTEM*

*A MAN thoroughly experienced in steel strapping applications—the Stanley Packing and Shipping Engineer.

A METHOD adaptable to any requirement—the Stanley Steel Strapping System with representatives in 32 principal cities.

**HARDWARE
TOOLS
ELECTRIC TOOLS
STEEL STRAPPING
STEEL**

THE STANLEY WORKS, Steel Strapping Division
202 Lake St., New Britain, Conn.

- ☐ Yes—the 30-day trial interests me. Have the Stanley Packing and Shipping Engineer call.
☐ Send me complete information about the Stanley Steel Strapping System.

(Please write name and address in margin of page)



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New, faster marking system simplifies shipping!

Yes, put away non-permanent tags and labels, eliminate tacking, stapling, gluing of addresses. Simply apply MARSH stenciled marking directly onto your shipments. Bold, easy-to-read $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" letters. With either electric or hand operated machines it's faster, and costs you less than complicated methods. Ask us for proof today.

For more information or a free demonstration mail us this ad with your name and business letterhead

MARSH STENCIL MACHINE CO.
87 Marsh Bldg.
Belleville, Ill.

MARSH

HEALTHY SCALES

Continued

tage of the owner of the scale, because the extra resistance makes it necessary to load the scale excessively to register any certain amount.

It's odd, but too many people forget that a scale is just a piece of machinery like a motor and will get out of adjustment, too. There's one important difference between the two, however. If the motor gets broken, it usually won't function until fixed. The scale, on the other hand, will usually continue to function—inaccurately, and with disastrous results. An important tip, then, from the scale industry to materials handling men, is the necessity for frequent and regular tests of their weighing equipment, no matter what kind it is. That should be obvious, but, believe me, it's not.

The processors who had the defects in their scales brought to

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are you **REDUCING** your handling **COSTS** with **A. J. GERRARD** **STRAPPING?**

**We Have
Solved
Shipping Problems
For Over
15,000
Users**

Phone or Write Today for Full Information

SALES-SERVICE OFFICES IN PRINCIPAL CITIES

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main office and factory
1960 Hawthorne Court
Melrose Park, Ill. (Chicago Suburb)

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NEWARK OAKLAND CLEVELAND PORTLAND LOS ANGELES BIRMINGHAM

**NEW!
FAST!
EASY!**



PRINT FACSIMILE LABELS DIRECT TO CONTAINERS

Here's the new system that eliminates labels and the old stencil board—ink brush method of addressing and marking shipping containers. With the new Web-O-Print JC-3 hand printer and a Kustom-Kut (die-cut) stencil, you can print both facsimile label and shipping information direct to cartons or boxes in one operation... at the rate of 40 to 50 cases per minute!

Kustom-Kut stencils are pre-cut to print your label or form. Address and other variable information are typed in... stencil is quickly attached to Web-O-Print... label and address are then printed on container in a single movement.

Web-O-Printing is a fast, clean one-hand operation. Prints on rough and cylindrical surfaces. Leaves a sharp, compact, fade-proof and waterproof print. Can be easily blocked out for re-shipping.

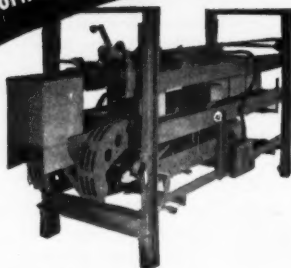
FREE SAMPLE PRINT Write today for a sample print and information on trial offer. No obligation.

Weber

LABEL AND MARKING SYSTEMS
Division of Weber Addressing Machine Co.
Dept. F-2, Mount Prospect, Ill.

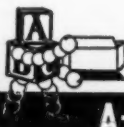
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142

**A shorter, narrower,
simpler, and better
performing case sealer**



THE NEW A-B-C Junior CASE SEALER

The A-B-C Junior Case Sealer automatically seals corrugated shipping containers in only a fraction of the floor space ordinarily required. Operation is fast—trouble free—economical. A completely new flight chain construction virtually eliminates carton jamming... Three semi-automatic models are available to fit most case sizes. Write today for details and floor plans.



A-B-C PACKAGING MACHINE CORP.
QUINCY, ILLINOIS

Circle No. 168 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

their attention are a lot luckier than most people using industrial scales can count on being. Few firms using industrial weighing processes can count on having a local sealer bring their errors to their attention, since they are seldom in a buyer-seller relationship with the public, the usual area where the sealer is concerned. Consequently, few sealers check industrial scale installations.

This has led to a paradoxical situation. Industrial weighers who have a lot to lose—really huge sums—are likely to be using scales that were installed sometime prior to the year One. Since the scales seem to be giving correct weight (they always seem to until proven incorrect) and since no one complains, these ancient relics go right on—giving incorrect weight.

Common sense would indicate regular checking of your scales to see that they are accurate. The cost of adjustment or replacement is very minor, indeed, to the fantastic losses that a bad scale can entail.

Competition usually keeps the profit margin low. The entire science of cost accounting proves this. In some industries, like the meat industry, the overall profit margin is estimated at less than 1%. It doesn't take many weighing errors to wipe out a profit as small as that.

Misusing Scales

Another source of weighing errors is the use of scales for weighing purposes for which they were never designed. A prominent business counselor who knows about scales recently told me that many coal mines, grain elevators, stone quarries and processors have, in his experience, lost considerable sums of money through weighing errors by using scales of the wrong capacity. Most of them, he said, were trying to weigh with scales that were too light for the job.

Equally wrong is using a very heavy capacity scale to do a light weighing job. For example, it is well recognized that it is improper to weigh a 60 pound calf on a 10,000 pound livestock scale.

But expensive as it is to give overweight, it's probably more ex-

pensive to give underweight in packaged goods. Take, for example, a case where the Cleveland Weights and Measures Division rejected 3,000 bags of flour for short weight. These bags were rounded up from wholesale houses and from retailers to whom they had been distributed. All were shipped back to the mill for reprocessing, repacking and redistribution.

Hudson Wright, the Sealer of Wayne County, New York previ-

ously mentioned, tells about a processor in his district who was forced to reprocess and reweigh every one of 60,000 bags of potatoes for short weight.

In a midwestern city, an entire carload of butter had to be rounded up from wholesalers and retailers and thousands of pounds had to be repacked and reweighed.

Think of the loss of profit and priceless good will from such cases!

The lesson is clear. Overweight

B-G FOR SAFE HANDLING AND SHIPPING



MODEL A

Pallet Box is easily attached to any standard pallet by means of 4 corner irons and flat or round steel strap. Collapsible for storage and return shipment.



MODEL C

B-G Collapsible, hinged pallet box with drop-leaf panel for greater accessibility. All B-G pallet boxes can be furnished with top cover, if desired.



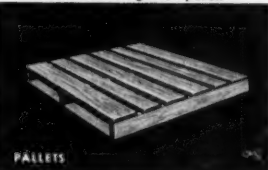
MODEL B

This collapsible pallet box has front opening for easy access to contents when stacked or in racks. Furnished with or without self-locking insert panel.



EXPENDABLE

B-G expendable pallet box, designed to withstand specified loads. Inexpensive, permitting discard after usage. Top cover, if desired.



PALLETS

Hardwood pallets made in all sizes and styles. Nailed with cement-coated drive screws.



TIGHT CORNER CRATE

The collapsible crate with the exclusive B-G Tight-Corner Hinge. Offers unusual rigidity and strength, yet light in weight. Easily assembled. Nail holes pre-drilled. Made up in 3 parts. Shipped collapsed.

For greater strength in stacking, materials handling and shipping, use Bigelow-Garvey Tight-Corner Collapsible Crates and Pallet Boxes. Designed to withstand transportation and handling hazards, B-G containers are extra strong for stacking and ideal for storage. Shipped in two or three sections. Fully assembled. Pre-drilled nail holes enable quick packing. Let us design sample container to meet your requirements.



Tight Corner Hinge Crate
MILLS



Wooden Pallet
ARKANSAS



Model A
GEORGIA



Model B
MISSISSIPPI



Model C
WISCONSIN



Crates
MINNESOTA

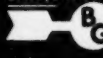


Wooden Boxes
ILLINOIS



Six Section Pallet Crates
ILLINOIS

always check



Write for complete details and prices to...

BIGELOW-GARVEY
lumber company

General Office and Laboratory

324 W. HURON STREET • CHICAGO 10, ILLINOIS

Circle No. 21 on Reader Service Card for more information

**PRINT
OR CODE
YOUR GUMTAPE
BY SIMPLY ADDING
"THE TAPE PRINTER"
TO YOUR PRESENT
EQUIPMENT**



**QUICKLY
EASILY
CLEANLY
ACCURATELY**

A quick method of marking to identify contents or for general advertising uses on **YOUR OWN GUM TAPE** . . . Fast, Effective. Prints as you use your machine for all shipping packages. Ideal for all types of business. Now being used by a host of leading concerns everywhere. A time, money and labor saver.

There is a Tape Printer to fit any 3" standard automatic machine . . . with models available for quick change of copy for coding, identifying, dating, etc.

**Complete
with
permanent
copy**

\$31⁷⁵
F.O.B.
N.Y.

Write for information and descriptive literature

**Mechanically
Simple**

**Engineered for
Long, Hard Use**

**Eliminates
Need for Large
Inventory**

**Codes and
Padlocks
Contents**

Self Inking

Instant Drying

**Prints up to
12" of copy**

**Quick
Changeable
Type**

AMERICAN TAPE PRINTER CO.

Distributor of the "Tape Printer"

678-6th Avenue

New York 10, N. Y.

Circle No. 11 on Reader Service Card

HEALTHY SCALES

Continued

or underweight are both far too expensive to be tolerated. Scales must be *exactly* right.

The answer to the whole problem seems to be an awareness that scales need frequent, regular checks. (Merely because the weight indicator rests at zero when there is no load upon the scale doesn't mean the scale is correct.) Furthermore, scales need a certain freedom from the tampering of unauthorized operators or amateur, would-be mechanics.

Remember, too, that scales are delicate instruments. Loads should NEVER be dropped on them. Finally, as in every field, modernization in scales is important. When a scale has served past its usefulness, or when an obviously better model appears, it's far cheaper to replace it. Remember, it's your money the scale is weighing. Why give it away?

Circle No. 77 on Reader Service Card

PRINT YOUR OWN SHIPPING CONTAINERS OR MULTI-WALL BAGS

. . . as you need them



**INDUSTRIAL'S
AUTO PRINTER**

Is suitable for imprinting information, addresses, marking, or whatever you may require on your containers or multi-wall bags. It is capable of printing as many as 2400 unit per hour. Eliminates hand stenciling.

This is just one of Industrial's coding and marking machines designed specifically for your needs to assure more efficient marking and movements of materials on production lines. Marking equipment is also available for conveyor line use and for MUNITIONS marking.

Let us help you—send us your marking problem; we will do the rest.

Write for catalog today.

INDUSTRIAL MARKING EQUIPMENT CO.
Designers & Builders of Marking Equipment for Industry
DEPT. F., 454 BALYIC STREET
BROOKLYN 17, N. Y. • MAIN 4-2601

**Easy to use . . . Easy to clean
. . . Easy to service**



**DERBY
SEALER**

**MODEL 32
GUMMED TAPE
DISPENSER**

For Shipping Room and Production Line Packaging

• Rugged simplicity aptly describes the Model 32. Derby's exclusive, one-piece solid casting eliminates parts and provides added rigidity. What's more, the Model 32 is easy to clean, even during the hot summer months when machines tend to "gum-up."

• The Derby Model 32 accommodates any tape from 1" to 3" wide. Delivers from 4 inches to 34 inches of tape at one stroke.

• Derby's exclusive "moisture-control" system maintains a maximum high water level in the tank to assure a constant supply of water to the brush, no matter how fast tape is dispensed.

• Also available is the Model 32-T with tool steel shear-type blades for cutting reinforced strapping tapes. Blades have two cutting edges to double their useful life before resharpening.

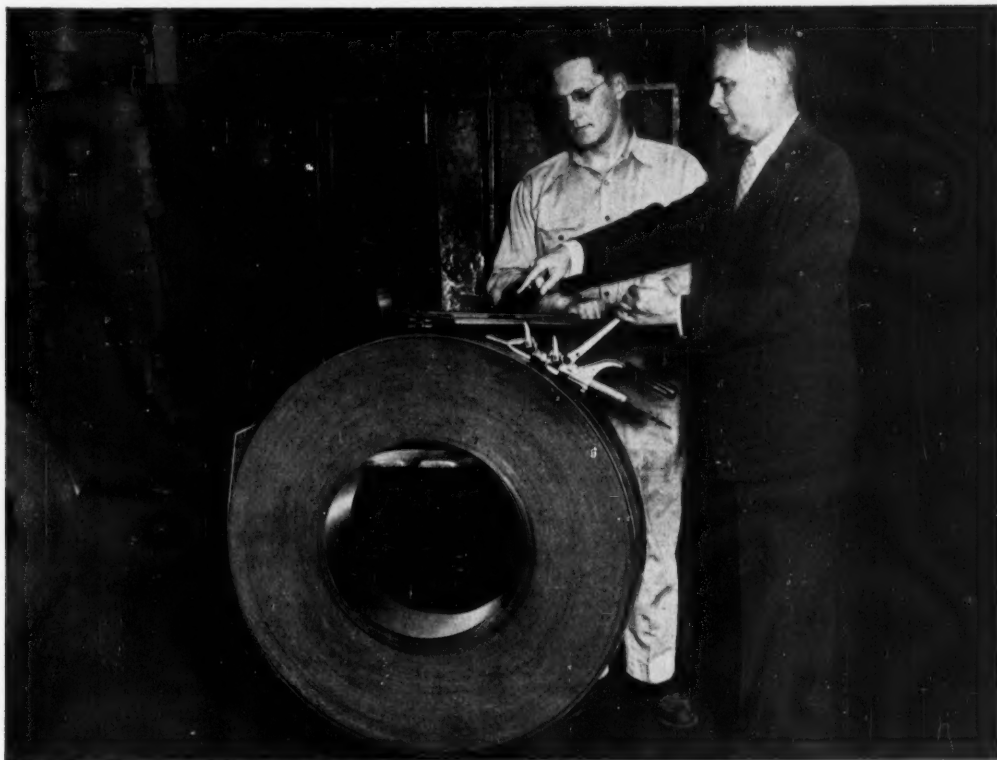
For further information, write Dept. F

DERBY SEALERS, INC.
Derby, Connecticut



Circle No. 42 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953



50% faster handling!

Can Brainard Strapping Service help you?

HERE is Brainard salesman Oscar Gagnon of Boston demonstrating a more efficient method of securing rolls of strip steel. The rolls are now banded with heavy-duty Brainard strapping before annealing. Handling is easier all along the way, and operations have been speeded up 50%.

Oscar Gagnon is an old hand in the materials-handling field, and has helped many companies reduce packaging and shipping cost. Like other Brainard salesmen, he has the

experience to *study* your operations, *recommend a system* and *demonstrate* to your personnel.

Brainard salesmen can help you develop strapping systems for packaging, palletizing, carloading, bundling, export crating and warehousing. Ask for a Brainard strapping analysis and determine if you can make substantial savings in these operations. Brainard offices are located throughout the U. S. In Canada: Brainard Steel Canadian Division, Toronto.



COMPLETE STEEL STRAPPING SERVICE, LIGHT AND HEAVY-DUTY STRAPPING, TOOLS AND ACCESSORIES

For further information, write
Brainard Steel Division,
Sharon Steel Corp., Dept. K-9,
Griswold Street, Warren, Ohio



STEEL STRAPPING

Circle No. 22 on Reader Service Card for more information

Circle No. 68 on Reader Service Card for more information

STOP WASTING MONEY!

**GLUE-FAST METHOD
4 SAVES MONEY
WAYS:**

1. Use ungummed labels, can be part of billing form.
2. Low cost for equipment permits wider use.
3. Specific liquid glue increases efficiency and labeling quality.
4. No maintenance or mechanical parts to consume time.

If you haven't yet investigated the advantages of using the GLUE-FAST LABEL GLUER, here's your chance. Let us show you how, at little cost and NO RISK WHATSOEVER, you can make more money right in your own plant!



Clip your labels to company letterhead and indicate types of material to which applied for

FREE 10-DAY TRIAL
of GLUE-FAST GLUER shown with supply of recommended liquid glue. Purchase price only \$17.50 complete for 6" Model BX illustrated.

Brochure on request

Glue+Fast EQUIPMENT CO., INC.
9-11 WHITE STREET • NEW YORK 13, N. Y. • WAlker 3-0542

Mfrs. of GLUE-FAST
Label Gluers & Liquid Glues

PLAN NOW

to be in **BOSTON** for the
**8th Annual NATIONAL
Industrial Packaging
& Materials Handling
EXPOSITION**
OCTOBER 20-21-22-1953
MECHANICS BLDG. • BOSTON, MASS.

**MOST INFORMATIVE
SHOW IN THE
INDUSTRY**

**YOU WILL
EXAMINE**

**YOU'LL GET
TO KNOW**

YOU CAN LEARN

YOU WILL SEE

New, unusual, refined, modernized products, equipment and materials

Foremost industrial packaging and materials handling men

The newest—from the renowned "Short Course" in packaging and materials handling (Sponsored by Mech. Eng. Dept. of M. I. T.)

Interesting, instructive entries in the National Protective Packaging and Materials Handling Competition

First National Packaging and Materials Handling Show in the **GREAT NEW ENGLAND MARKET**

SOCIETY OF INDUSTRIAL PACKAGING & MATERIALS HANDLING ENGINEERS, ROOM 902-H, 20 W. JACKSON BLVD., CHICAGO 4, ILL.

MAIL COUPON NOW FOR FULL INFORMATION

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

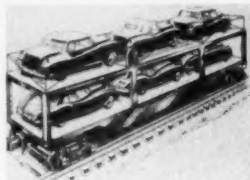
Circle No. 147 on Reader Service Card for more information
146

PACKAGING AND SHIPPING NEW EQUIPMENT . . .

(Continued from page 125)

Six-Car Auto-Loader

An auto-loader for railroad use which permits six autos to be carried on a car instead of four, has been developed by the Evans Products Co. The new auto-loader has two advantages, according to Evans: pay load will be increased 50%; and through modification in present loading and unloading practices, it is expected to do much to increase revenues for the railroads and gain for the rails shipments now going by other means of transportation. Three cars are carried on the floor and three on a second deck. No special flat car is needed; the 6-car auto-loader can be built on a standard 53' 6" flat car frame. When not in use as an auto carrier, it can be used to carry many types of dead freight normally shipped on flat cars.



Circle 207 on Reader Service Card for more information



Why Shipping Labels? PRINT DIRECT Speeds Up Freight Marking

Eliminate the cost and time of pasting on labels. **Print direct** . . . 1000 or more clear, sharp copies without re-inking. Prints practically anywhere . . . postcards, tags, labels, boxes, cartons, packages, menus, forms, letters . . . paper, cloth, wood. Just type, write, trace or draw on inexpensive stencil . . . snap it on duplicator . . . and print—like using a rubberstamp. New pre-die-cut "FORM-CUT" stencil prints shipping form and identification data in one operation.

THE ORIGINAL HAND STAMP
STENCIL DUPLICATOR

Portable . . . non-mechanical . . . of non-corrosive metal . . . replaceable ink pads. 8 complete outfits: \$9.50 to \$99.50, including supplies (f.o.b. factory). Write for literature or see your office or shipping room supply dealer.



OVER 30 YEARS

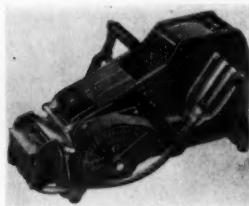
MULTISTAMP
STENCIL DUPLICATOR



Circle No. 114 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

Reinforced Tape Dispenser

Extra sharp, heavy duty, tool steel cut-off blade



is said to make it possible for this dispenser to be used with all types of reinforced tapes as well as the lighter types. An auxiliary reservoir maintains a high water level in the tank, reducing capillary lag and assuring constant moisture at the top of the brush, even when tape is dispensed at great speeds. It is Model 32-T of Derby Sealers, Inc.

Circle 208 on Reader Service Card for more information

Portable Paper Cutter

The B-Line Portable Paper Cutter is a development of S. J. Bina Co., to solve problems of grain elevators, warehouses and factories faced with the problem of conveniently handling large rolls of wrapping paper. The cutter can be wheeled anywhere in a plant, in the same way a two-wheel hand truck is moved, and set down at the point where it is to be used. It can be used in vertical or horizontal position.

Circle 209 on Reader Service Card for more information

Circle No. 39 on Reader Service Card for more information

ITS FELT TIP WRITES ON EVERYTHING!



in **BOLD** or *fine* lines

Marking steel drums, tools, parts, pipes, etc. is smooth sailing with the Flo-master Felt-Tip Marker.

The complete range of ten colors in Flo-master inks permits speedy and accurate identification for assembling, stocking, inspecting.

Flo-master semi-opaque inks—waterproof, non-smudging, fast-drying—are recommended for hard-to-mark surfaces using the KING SIZE Flo-master. For general purpose marking—cartons, cases, etc.—use Transparent inks with POCKET SIZE Flo-master (illustrated).

Contact your supplier or write direct to Cushman & Denison Manufacturing Co., Dept. F-10, 153 West 23rd Street, New York 11, N. Y.

Flo-master
FELT-TIP MARKER

How Lyon Metal Products cut 7.7% off packaging cost with TAPE-STRAP®

Here's a typical example of saving money with Tape-Strap—laminated, reinforced filament tape.

Among the Lyon Metal Products Company's products is a 6-unit metal shelf, weighing 143 lbs. It's packed in a full telescope carton. Previous reinforcement was six 86" strips of rigid material, mechanically applied.

Two years ago, Lyon switched to Tape-Strap. Now, three 1" x 8" strips of Tape-Strap on each side provide all the reinforcement needed.

Packaging with Tape-Strap is easier, less dangerous to personnel, requires no special equipment, and saves 7.7% per unit over the previous packaging method.

You can't break Tape-Strap

This amazingly strong reinforcing tape has a central layer of thousands of tiny filaments embedded in resilient, shock absorbing material. This center is sandwiched between outer layers of tough, pliable Kraft. Adhesion is instant and permanent. Tape-Strap carries a super heavy coat of the finest, water-soluble gumming.

TAPE-STRAP is approved too! It is approved under Rule No. 41 and No. 5 of the Consolidated and Uniform Freight Classifications and various specific packaging items. It has also been accepted by Railway Express under Rule No. 18. The United States Government approved TAPE-STRAP for domestic packaging by announcing a new Military Specification MIL-T-4601 (USAF). This specification is dated February 2, 1953 and our Tape-Strap meets all requirements of this specification.

Circle No. 107 on Reader Service Card for more information



Photo shows neat Tape-Strapped carton at left, with previous packaging method illustrated at right.



FREE SAMPLE ROLL—Write for it... and test Tape-Strap's astonishing reinforcing strength, ease of application, in your own shipping room.

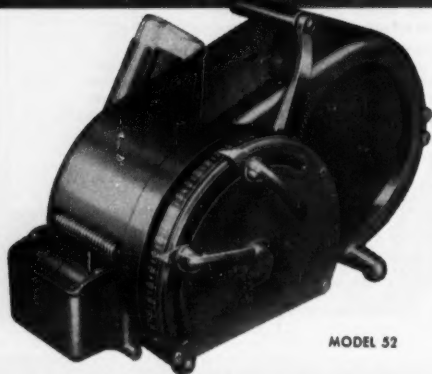
LEADERS IN THEIR LINE

MID-STATES Gummed Paper Company

2511 S. DAMEN AVE., CHICAGO 8, ILLINOIS

New York • Boston • Philadelphia • Cleveland • Detroit • St. Louis • Atlanta • Los Angeles

FREE TO DAY TRIAL OFFER



MODEL 52

streamline your
packaging operations with a

NATIONAL TAY-PER®

- **SAVE TIME** — simplified operation speeds packaging
- **SAVE LABOR** — automatic moistening control* reduces rub down time
- **SAVE MONEY** — automatic dispenser delivers any predetermined lengths, eliminates waste
- **AVOID DAMAGE CLAIMS** — positive moistening control "welds" tape to cartons for double protection

*endorsed by the Association of American Railroads and the Gunned Industries Association, Inc.



NASHUA PACKAGE SEALING

DIVISION OF NASHUA CORPORATION
Nashua, N.H.

World's largest manufacturer of tape
moistening machines and gummed tape.

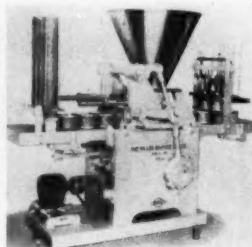
Please send me a National Tay-Per for a
10 day FREE trial.

Name _____
Company _____
Address _____
Dept. 20

Circle No. 115 on Reader Service Card for more information

Two-Line Filling Machine

A two line filling machine that automatically feeds, fills and caps cardboard tubs has recently been developed for the dairy and food industries by the Filler Machine Co., Inc. The unit also handles plastic and glass containers. Speed of fill is 40 containers per minute on the two line machine with higher speeds on other similar Geyer machines that are available. Hoppers can be obtained with capacities of 30 gallons or higher. A ½ hp GE motor supplies power.



Circle 210 on Reader Service Card for more information

Portable Tape Dispenser

Gummed tapes of all types are reportedly applied directly to cartons with Roll-on Sealers. Complete with water and tape, the sealer, manufactured by Roll-On-Sealer Corp. weighs only about five lbs., permitting it to be carried anywhere to seal containers. The dispenser measures, moistens, applies and cuts tape in a single stroke.



Circle 211 on Reader Service Card for more information

Automatic Twine Sealing Machine

Shown here is the B. S. M. Automatic Twine Sealing Machine made by Gerrard Steel Strapping Division of United States Steel Corp. It's made in two models... 0400 is a 10" machine, and 0401 is a 14" machine. Benefits claimed for both models include: 30 seals per minute; adjustable tension; less overall twine consumption; metal seal for 100% efficiency; pilfer-proof seal ties; no operator fatigue; mobility, portability and rigid construction; fully automatic. Ties are accomplished in a single cycle with 1500 metal seal ties per reel.



Circle 212 on Reader Service Card for more information

Circle No. 193 on Reader Service Card for more information

LONG, BULKY LOADS can be handled in and out of crowded and inaccessible areas with the floor crane shown here. This unit, with its revolving boom is the jack-of-all-jobs of the plant, being used for receiving bundles of pipe directly from the delivery truck, loading gondolas, storage operations, depositing loads in areas otherwise inaccessible by industrial trucks, etc. Telescoping boom greatly simplifies storing of materials in high places like balconies and top shelves.



Circle No. 106 on Reader Service Card

TWO MEN FOR THE PRICE OF ONE WITH

MICRO LEVER-DOLLIES

Usually Purchased
and Used in Pairs.

Reasonable in
Price and
Guaranteed



Made in
3 Handy
Sizes

**FINEST
MATERIALS
AND
WORKMANSHIP**

Write for complete
descriptive circular

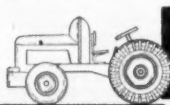
MICRON, INC., Dept. F
BETTENDORF, IOWA



King of FORK TRUCKS for OUTDOOR HANDLING

**CUT MATERIAL HANDLING COSTS
THREE WAYS WITH TRACTO-LIFT!**
New heavy-duty fork lift truck will
save you time, labor, and money.

***SAVE TIME**—Tracto-Lift can handle heavy loads at the higher speeds of industrial tractors. ***SAVE LABOR**—With Tracto-Lift one man can handle heaviest stacking and storage jobs. Lifting heights to 25'. Maximum maneuverability, even climbs inclines up to 20%. ***SAVE MONEY**—Now wasted, unpaved outside storage space can be used all year round. Tracto-Lift has ample underneath clearance and over-size pneumatic tires with maximum traction, for travel over rough or soft ground. Low first cost, economical to operate. Because Tracto-Lift is based on a standard industrial tractor, parts and service are available throughout the world. A complete line of versatile attachments is available. Write today for illustrated brochure, specifications, and name of your nearest dealer.



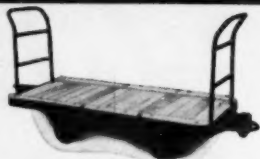
LIFT
Company

TRACTO

800 E. 10th St., Kansas City 8, Mo.



Circle No. 153 on Reader Service Card for more information



Strong, durable, light in weight and highly maneuverable. Made in wide range of sizes and capacities to suit every need. Send for free catalog of other Fab-Weld Materials Handling Equipment.



FAB-WELD CORPORATION

3656 Richmond Street
Philadelphia 34, Pa.

Overhead Handling Featured in Movie

UP AND OVER is a sound movie which discusses handling problems common to every industry, and is offered on a loan basis by The American MonoRail Company. The 16mm film tells the complete story of monorail material handling equipment, from simple applications to completely automatic handling systems.

The picture opens with a brief description of the company's twin-section track and its advantages. To portray its flexibility of application, progressive stages of an installation in a tool and die plant are illustrated by floor plan and motion on the job. This shows how the system was developed in this plant from a single track to complete overhead service merely by adding additional track, switches and cranes where needed.

The admission ticket is a note to American MonoRail, or you can write in No. 310 on the Reader Service Card.



For Greater MATERIALS HANDLING EFFICIENCY MARVEL SYNCLINAL FILTERS

For All Hydraulic And Low Pressure
Circulating Systems

**SIMPLE EFFICIENT DESIGN REDUCES DEMAND
ON YOUR SKILLED MAINTENANCE HELP**

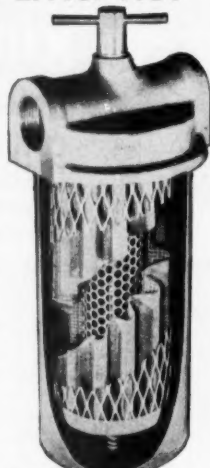


Sump Type (cutaway)

ANY WORKMAN can disassemble, clean and reassemble Marvel Synclinal Filters. Cleaning is done quickly, and Marvel's extra capacity requires less frequent cleanings. Marvel protected machines spend their time producing, not in being serviced and repaired. Marvel's simple efficiency changes down-time to producing time.

Choice of Over 350 Original Equipment Manufacturers

Improve your all-important preventive maintenance by simplifying it. Use Marvel Synclinal Filters throughout your plant. Specify Marvel on new equipment, install Marvel on present equipment. No moving parts to wear, nothing to keep in stock. Your first cost is your only cost. Available in both sump and line type models. Individual capacities from 5 to 100 g.p.m. and mesh sizes from 30 to 200. Multiple installation provides capacities as great as you may require. Line models operate in any position and may be serviced without disturbing pipe connections. Depend on Marvel for efficient filtration of liquids in all HYDRAULIC and LOW PRESSURE systems.



Line Type (cutaway)

MARVEL
ENGINEERING COMPANY

625 W. Jackson Blvd., Chicago 6, Ill.



**WATER
FILTERS**

In response to the great demand, we have designed both our sump and line types for use in all water filtering applications. No changes have been made in the basic synclinal design.

Marvel Engineering Co.
625 W. Jackson Blvd.
Chicago 6, Ill.

Without obligation, please send me your Catalog 104 containing complete engineering data on Marvel Synclinal Filters.

NAME _____

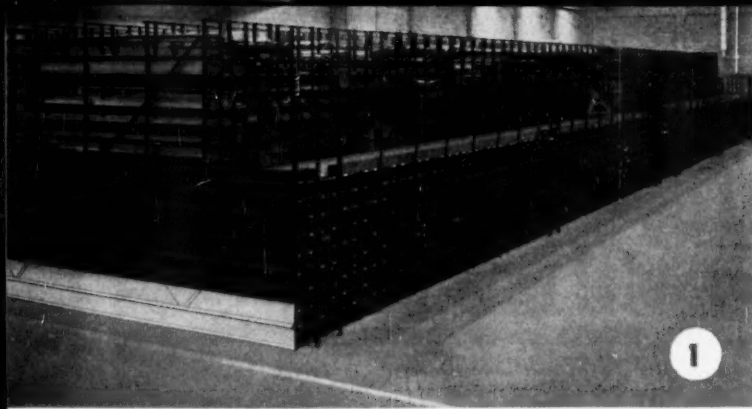
COMPANY _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____

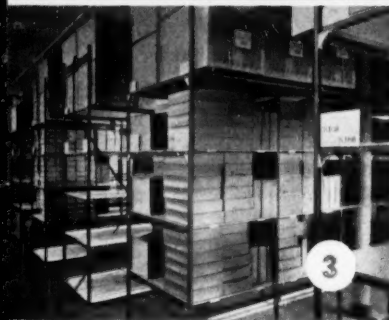
COUPON



1



2



3



4

Whatever your storage needs- you can build **RACKS** better, faster, at lower cost with adjustable **UNISTRUT®** Metal Framing

With UNISTRUT there is no drilling, no welding, no special tools or skilled help needed—just a wrench and a saw. All you do is cut channel to size and bolt fittings in place. It's easy to work with, can be used again and again without waste or additional investment. Let us make a free rack survey for you and demonstrate savings of time, space, labor and material.

- ① One of several UNISTRUT bar stock racks installed in plant of large aircraft manufacturer. Here is strength without bulk.
- ② UNISTRUT pallet racks installed in textile manufacturer's warehouse to store bulky cartons and bales.
- ③ Extensive installation of UNISTRUT general storage racks in large warehouse.
- ④ Time and labor saving UNISTRUT rack located in large industrial supply company warehouse.

Only the UNISTRUT Framing System has this Positive Clamping Action at all Points of Connection!

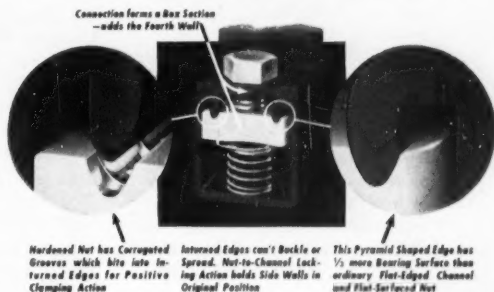


See our Catalog in Sweet's Plant Engineering, Industrial Construction and Architectural Files

Distributors and Warehouse Stocks in Principal Cities. Consult your Telephone Directories



U. S. Patent Numbers
2327547 2380379
2383382 2345462
2541908 2405631
2329815
Other Patents Pending



UNISTRUT PRODUCTS COMPANY

1013 W. Washington Blvd.,
Chicago 7, Ill. Dept. A9

Please send me a copy of Rack Catalog No. 600, without obligation.

Write for **FREE** 24-page fully illustrated Rack Catalog No. 600.



Name _____ Address _____
Company _____ City _____ Zone _____ State _____

What's

NEW in useful FREE literature

The publications featured on these pages were written by experts. They are FREE publications. To obtain them use the postcard bound into this issue.

All-Steel Conveyors:

All-steel, beltless conveyors for floor-to-floor movement are featured in an 8-page bulletin from Wehle Conveyor Company. These conveyors are said to save valuable floor space, and are engineered for simple installation at angles of up to 42 degrees. Among the models shown is the hamper conveyor, which conveys merchandise in hampers, crates, boxes, baskets with casters or with wheels attached.

Circle 249 on Reader Service Card

Plastic Tapes:

Five types of plastic tapes, together with 25 major applications, are highlighted in literature from Minnesota Mining & Manufacturing Co. Among the uses featured for these "Scotch" tapes are: lane marking, color coding, decorating and identification, protection against corrosion, pipe, duct, can, tube and bottle sealing, and electroplating.

Circle 250 on Reader Service Card

Pocket Catalog:

A comprehensive line of equipment for the "floor level" handling of goods and materials is presented in the Barrett Junior Catalog, No. 535. The 100-page catalog contains information, illustrations and specifications on fork trucks, high lift electric trucks, pallet trucks, industrial tractors, electric and hand lift trucks, skids, portable elevators, portable cranes, racks and other types of equipment.

Circle 251 on Reader Service Card

Magnesium Dock Boards:

Magline Inc. announces the availability of bulletin DB-204R on magnesium dock boards. The bulletin contains complete information on the company's expanded line of lightweight magnesium dock boards, together with technical data on Magline's new anti-collision safety curbs.

Circle 252 on Reader Service Card

Fab-Weld Catalog:

A 31-page catalog, illustrating more than 100 pieces of the various types and designs of material handling equipment manufactured by Fab-Weld Corporation is now available. Among the items listed are skids, pallets, racks, trucks, trailers, dump hoppers and special equipment.

Circle 253 on Reader Service Card

Hand & Platform Trucks:

Bulletin T-1 from The Fairbanks Company illustrates and describes this company's hand and platform trucks. This 4-page bulletin also contains complete specifications for the various models.

Circle 254 on Reader Service Card

Clamping Forks:

Literature from Lewis-Shepard Products, Inc., describes this company's hydraulically-adjustable clamping forks for use on Lewis-Shepard fork trucks. These forks are said to be ideal for handling drums, barrels or other similar objects.

Circle 255 on Reader Service Card

Interchangeable Forks:

An illustrated data sheet explaining the features of the Turnabout hydraulic lift truck of the walkie type may be obtained from Rack Hydraulic Equipment Corp. Easily interchangeable forks are said to be available in five standard lengths.

Circle 256 on Reader Service Card

Crane Scales:

Typical applications of Baldwin SR-4 crane scales and indicating or recording instruments for weighing loads electronically are described in Bulletin 4105, an 8-page illustrated brochure issued by Baldwin-Lima-Hamilton Corporation. The bulletin shows how these scales, utilizing the principles of the SR-4 bonded resistance wire strain gage, are installed and used.

Circle 257 on Reader Service Card

Industrial Trucks and Elevating Tables:

All standard models of The Raymond Corporation's line of electric industrial trucks and hydraulic elevating equipment are described in Bulletin 209 now being distributed. Complete specifications and explanation of the special features of each model are given. The bulletin describes electric industrial trucks, hydraulic pallet trucks, hydraulic skid lift trucks, hydraulic high lift trucks, hydraulic elevating tables and hydraulic elevating sheet feeding tables.

Circle 258 on Reader Service Card

Bin-Feeding Device:

PneuBin, manufactured by Gerotter May Corporation, is a bin-feeding device which is described in a bulletin offered by the company. A pulsating panel, which consists of a reinforced, abrasive-resisting, flexible diaphragm, produces movement of bin contents and positive extrusion where necessary. The bulletin points out that this pulsation makes it impossible for bulk materials to hang up or arch.

Circle 259 on Reader Service Card

"Forkloader":

Two-color literature on the recently-introduced Baker-Lull Forkloader has been issued by Baker-Lull Corporation. The literature describes applications and features of the 4-wheel-drive equipment and lists complete specifications for all models.

Circle 260 on Reader Service Card

Belt Conveyor Carriers:

Bulletin 453 from Stephens-Adamson Mfg. Co. describes the Stephens-Adamson belt conveyor carrier series designed with spun end rolls and welded steel frame. Seamless steel tube houses tapered roller bearings and is bored for precision alignment between roller diameter and bearing.

Write 261 on Reader Service Card

Blocks and Sheaves:

American wire rope blocks and sheaves are described in a 24-page catalog from American Hoist & Derrick Company. Complete specifications and information necessary to order blocks and sheaves are included.

Write 262 on Reader Service Card

Air-Cooled Engines:

The current issue of "Engines" from Wisconsin Motor Corporation includes several features on uses of this company's air-cooled engines in various industries.

Write 263 on Reader Service Card

Dump Trailer Train:

Red-E Tractor Company offers literature describing the Red-E No-Tip dump trailer train. Wider spacing of front and rear wheels are said to give safer, more stable hauling. The center of gravity is low, because the weight is balanced at the axles, not above them. These dump trailers are road tested, and carry as much as 1½ ton loads.

Write 264 on Reader Service Card

Truck Crane:

A 6-page illustrated bulletin describing its 6-ton, ¾ yard Model T-35 truck crane has been issued by Schield Bantam Company. The bulletin contains detailed mechanical specifications, together with complete dimensions and operating data, including information on various truck mountings and typical interchangeable attachments for the crane boom.

Write 265 on Reader Service Card

self-centering
STAK-MOR
stacking pallets
STACK
ANYTHING!

**DOUBLES YOUR STORAGE
SPACE FOR AS LITTLE AS
40¢ PER CUBIC FOOT!**

Economical STAK-MOR Pallets are a truly practical solution for storing "impossible to stack" items, changing square feet into cubic feet at a cost far below your expectations. STAK-MOR Pallets are shipped to you with all hardware attached, yet they may be stored neatly and compactly when not in use. Suitable for use with any type fork or lift truck, they enable you to change your entire storage layout almost as quickly as your truck can move back and forth.



**INVESTIGATE STAK-MOR
STACKING PALLETS**

STAK-MOR Pallets will solve most any stacking problem, but you don't necessarily require a stacking problem to find yourself in need of STAK-MOR Pallets. If you are interested in doubling your present storage space economically, or if you think you might like to reduce costs by cutting materials handling time as much as one-half, you can use STAK-MOR . . . the economical self-centering stacking pallet.

WRITE FOR BULLETIN 35, NO OBLIGATION

STAK-MOR SALES COMPANY
1931 OLIVE STREET ST. LOUIS 3, MISSOURI

Circle No. 143 on Reader Service Card for more information

Cone-Drive Gears:

"Cone-Drive Gears at Work in Materials Handling" is an 8-page brochure available from Cone-Drive Gears Division, Michigan Tool Company. Fourteen typical applications of Cone-Drive double enveloping worm gear sets and speed reducers are described and illustrated in the brochure. These include hoists, cranes, winches and conveyors.

Write 266 on Reader Service Card

Emery Aggregate:

The use of natural emery as an aggregate for heavy-duty industrial flooring is described in an 8-page bulletin from Walter Maguire Company, Inc. Included are reasons for using this aggregate, what it is, its outstanding features and fields of industrial application. Also included are recommended specifications and compression and tensile ratings.

Write 267 on Reader Service Card

"Warehouser" Truck:

The "Warehouser" electric rider straddle truck, designed for narrow aisle tiering, is described in Bulletin 1535A, published by The Yale & Towne Manufacturing Company. The 4-page folder gives complete specifications for the two standard models: 2000 and 3000 pounds capacity respectively.

Write 268 on Reader Service Card

Bulk Handling Book:

"Industrial Handling" is a magazine published by The Frank G. Hough Company to encourage better bulk material handling in all types of industry. Case histories involving the handling of bulk materials are presented.

Write 269 on Reader Service Card

Cranes and Hoists:

Bulletin No. 3000-A from Conco Engineering Works describes and illustrates various types of cranes and hoists manufactured by the company. Types include: overhead traveling cranes, including hand and electric powered, jib cranes, trolley hoists, chain hoists and trolleys.

Write 270 on Reader Service Card

Weight Indicator:

Bulletin W-1 from W. C. Dillon & Company, Inc., describes and illustrates this company's weight indicator, which checks loads as they are lifted. Thus, weighing and handling are combined. Complete specifications are given, as well as prices, uses and other data.

Write 271 on Reader Service Card

Truck Catalog:

The Buda Company offers a comprehensive, 36-page catalog describing this company's line of industrial trucks. Complete descriptions of the various models, plus details of construction features and component parts, are included in this colorful, amply-illustrated catalog.

Write 272 on Reader Service Card

NOW! MORE AND FASTER DELIVERIES AT LOWER COST...

New and faster methods of material handling in loading and unloading trucks have offset the rising costs of delivering merchandise of every description. Now Anthony Lift Gates reduce costs still further by: lighter weight—to permit more payload per trip—more payloads per day; by using only ONE cylinder and ONE control lever for ALL operations—greatly simplifies and cuts manual time per delivery—74% fewer operating parts minimizes maintenance.

10 important reasons why Anthony Lift Gates can cut your delivery costs up to 50% are explained in New Brochure just off the press. Send for your copy today.

ANTHONY LIFT[®] GATES

In sizes up to 4000 lbs. for all trucks and semi-trailers.



Gas Cylinder alone does all operations—open, close—lifts and lowers gate.



Paid. & Pats. Pend.
U.S. and Foreign

Anthony—the Power to lower delivery costs.

ANTHONY COMPANY

STREATOR, ILLINOIS
DEPT. 15D

Circle No. 12 on Reader Service Card for more information

Box Handling:

"The Logistics of Boxes" is an 8-page booklet which illustrates and describes the handling of boxes in load units. It is available from Elwell-Parker Electric Company. The literature contains handling tips for receiving materials in boxes, transporting the boxed material through processing and shipping the material in boxes.

Write 273 on Reader Service Card

Lightweight Trucks:

A catalog on lightweight material handling equipment has been released by Tobey Manufacturing Corporation. The catalog covers the complete line of Tobey material handling trucks which are constructed of aluminum.

Write 274 on Reader Service Card

Tray Conveyor:

Lamson Corporation has issued a catalog entitled "Faster Food and Dish Handling With Lamson Trayveyors". Designated as Bulletin 749, this 24-page booklet was developed to illustrate the numerous advantages to be derived from the installation of a Trayveyor in hotels, clubs, hospitals and similar institutions.

Write 275 on Reader Service Card

Utility Hoist:

Unit Manufacturing Company offers a catalog sheet on its hydraulically-operated utility hoist, which can be transformed from a shop hoist to a truck hoist in a matter of seconds. Construction features, typical uses, engineering drawings and specifications are included.

Write 276 on Reader Service Card

Elevating End Gate:

A descriptive catalog covering its latest model Lift-O-Matic elevating end gate for pickup trucks is available from National Lift Company. Construction features, specifications and illustrations of component parts are included.

Write 277 on Reader Service Card

Screw Conveyor:

Industrial Machinery Company, Inc., offers Catalog 300B which describes in detail this company's cold-formed helicoid screw conveyor and accessories. These conveyors are made in a complete range of sizes from 4 inches to 24 inches in diameter, and the cold forming methods are said to improve the physical properties to a high degree both from the standpoint of tensile as well as yield.

Write 278 on Reader Service Card

Variable Speed Drives:

Bulletin V-532 from Reeves Pulley Company describes the Reeves Flexi-Speed Drive, an addition to the company's line of variable speed drives and controls. In addition to showing the flexibility in mounting by means of photos, the bulletin describes the unit in some detail, gives rating tables, shaft center distances, ordering instructions and complete dimensions.

Write 279 on Reader Service Card



INDUSTRIAL TRUCKS

... how to tell when they are

Busy?
Idle?
Lifting?
Engine Running?

Also—When to Overhaul!

PUT ON Servis Recorders!

A couple of screws or bolts does the job. Then the truck itself writes its own story!



THE CHART

Wax covered, no ink or pencil needed; a sapphire stylus marks the record—a picture of the day's work at a glance.

SERVIS RECORDER—closed.
Just bolted on—no connection with any moving part.

LET US SHOW YOU
how Buick, Thompson Products, and others are getting big results with Servis Recorders.

THE SERVICE RECORDER CO.
1375 Euclid Avenue • Cleveland 18, Ohio

The Servis Recorder
Keeps Trucks Busy

Circle No. 138 on Reader Service Card for more information

Railroad Telephone:

Application of railroad-owned, long-distance telephone network in the administration and operation of the Louisville & Nashville Railroad is presented in an illustrated 12-page case history published by the manufacturer of P-A-X Business Telephone Systems, and is made available by Automatic Electric Sales Corporation. Specific use, advantages and economies provided by this direct telephone communication are discussed in detail, and general speci-

fications of telephone equipment are listed and illustrated.

Write 280 on Reader Service Card

Adjustable Ramp:

Literature from Hohl Machine & Conveyor Company, Inc., describes and illustrates the Hohl adjustable ramp for installation in existing buildings without excavation. It can be mounted on top of a loading dock.

Write 281 on Reader Service Card

Handcuffing Man-Hour Thieves:

Towmotor Corporation offers an interesting booklet with the provocative title of "How To Use Handcuffs Where They'll Do the Most Good". Wherever products are handled, moved, transported or stored, the booklet points out, the loot of man-hour thieves is taken from the profits. Only by ferreting out all inefficient handling can you rid your plant of such losses, says Towmotor, and goes on to explain how it can be done.

Write 282 on Reader Service Card

Automatic Tongs:

"This Is Heppenstall" is a booklet available from Heppenstall Company, and it describes how steel is made and then forged into products such as die blocks, shear knives, back-up roll sleeves and automatic tongs. The use of automatic tongs during the various processes also is included.

Write 283 on Reader Service Card

Nesting Boxes:

The Chas. Wm. Doepke Mfg. Co., Inc., has prepared a brochure describing the NestTier system of nesting and stacking tote boxes. Typical application photos are included, as well as photos and descriptions of the various types of boxes and baskets available. Specifications of the different models are listed.

Write 284 on Reader Service Card

Operator's Booklet:

"Operating Your SpaceMaster Fork Truck" is a booklet available from Lewis-Shepard. While it is designed primarily to give informative operating tips to new users of this company's equipment, it is of interest to all users or potential users of any fork truck equipment. It features a complete suggested training program for fork truck operators, covers the importance of preventive maintenance and lists 19 safety do's and don't's.

Write 285 on Reader Service Card

Don't Move..



without AMERICAN

Use an American Hand Truck for
Every One of Your Handling Jobs—More than 60 Models and Sizes!

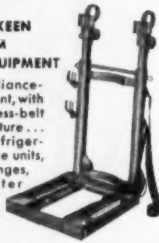
AMERICAN Pressed-Steel HAND TRUCKS

Rugged pressed-steel hand trucks for light, medium, or heavy loads; for kegs, cases, barrels, cartons, packages, drums, bags, boxes, bales, and crates. Single- and double-handle trucks; trucks for specific industries and special purposes.



AMERICAN-KEEN MAGNESIUM APPLIANCE EQUIPMENT

Magnesium appliance-handling equipment, with or without endless-belt stair-climber feature... for handling refrigerators, deep-freeze units, gas or electric ranges, automatic water heaters, radios, television sets.



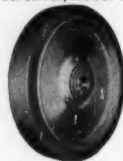
AMERICAN Pressed-Steel Drum and Barrel Cradles

Pressed-steel drum and barrel cradles, with or without wheels, equipped with patented feature not found on other cradles—a loading bar—which enables a drum to be loaded and handled by one man.



AMERICAN INDUSTRIAL WHEELS

Complete line of sturdy, easy-rolling Steelite® Industrial Wheels—pressed-steel center, rubber-tread, ball-bearing design. Other types of industrial wheels also available.



Materials Handling by

AMERICAN
PULLEY COMPANY

The American Pulley Company

4290 Wissahickon Ave., Philadelphia 29, Pennsylvania

Circle No. 10 on Reader Service Card for more information

Chain Conveyors:

A 16-page booklet from Chain-O-Flex Corporation contains full details on this company's conveyor, which essentially consists of link chain moving in steel tubes. Horizontal links slide on the inside lubricated surface of the slotted tube flanges while vertical links of the chain carry the loads with welded hooks. Installation photos are included, and component parts are illustrated. Technical data and installation instructions are listed.

Write 286 on Reader Service Card

Control Relay:

Application and design information about the Type N control relay is available in Booklet B-5817 from the Westinghouse Electric Corporation. An exploded view of the relay shows its construction features as well as how it is disassembled. Also, pictorial instructions show how to obtain the various combinations of normally open—normally closed contacts. A dimensional drawing of the relay and associated wiring circuits are provided.

Write 287 on Reader Service Card

Package Conveyor:

A folder from Union Steel Products Company describes the USP Wendway, a light package conveyor. This conveyor's belting is constructed of special steel wire, bright finished and lacquered. Included in the literature are installation photos and drawings illustrating the component parts.

Write 288 on Reader Service Card

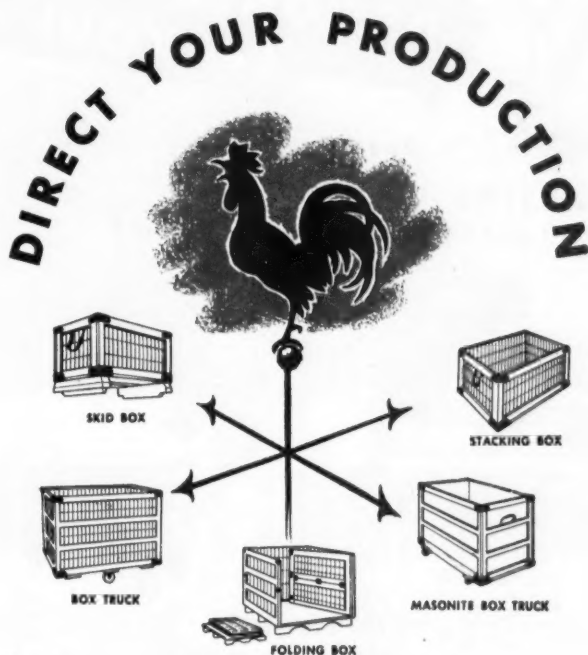
Drip-proof Motors:

The Lima Electric Motor Company has made available a brochure presenting the complete line of Lima drip-proof motors. The brochure includes speed-torque curves, frame number charts, dimensions and specifications for motors from 1/3 to 150 horsepower, as well as complete descriptions of variations for optional mounting and special purpose applications. The bulletin also covers changes in design, including use of prelubricated sealed ball bearings throughout.

Write 289 on Reader Service Card



THIS GIANT WIGWAM, set up recently right on the doorstep of the Cleveland Indians' baseball reservation, housed the much-publicized Yale & Towne Mfg. Co. 25,000-mile Road Show during its stay in Cleveland. R. J. Lavery, associate sales promotion manager in charge of the tour, played host to visitors attending the display of Yale & Towne material handling equipment.



designed for the job...

These five basic Lewis Containers are built to fit varied needs for quicker movement of parts along the production lines. Many adaptations — such as elevated skids, drop sides, covers, skid trucks, partitions, and other exclusive Lewis features — can give the long wanted answer to your production bottleneck.

Select, resilient elm slats, firmly woven with strong steel wire, give a light weight yet sturdy structure for unparalleled adaptability in the industrial container field. Write for folder.

Representatives from Coast to Coast

LEWIS
INDUSTRIAL CONTAINERS

O. B. LEWIS CO., 6901 MONTGOMERY ST., WATERTOWN, WIS.

Circle No. 86 on Reader Service Card for more information

PACKAGING & SHIPPING USEFUL LITERATURE . . .

(Continued from page 140)

Packaging Brochure:

"Packaging for Industry", a brochure dealing with flexible packaging, is available from Kennedy Car Liner & Bag Company, Inc. It gives an inside view of Kennedy's operations, which cover a wide variety of products.

Write 290 on Reader Service Card

Cushion Underframe:

Pullman-Standard Car Manufacturing Company offers literature on its P-S cushion underframe with sliding sill for freight cars. This underframe absorbs shock instead of passing impact to cars and lading. The car is arranged so that the center sill slides relative to the underframe and is connected to the car body through the cushion gear. Complete details are included.

Write 291 on Reader Service Card

Wood Container Facts:

Practically everything container users should know about nailed-wood boxes, from "product analysis" to "glossary of box terms", is presented in a bulletin from The American Box Company. It is also designed for buyers of containers as reference material to keep on file for use in obtaining the right wood containers for every purpose.

Write 292 on Reader Service Card

Tape Dictionary:

A tape number dictionary which gives quick, easy identification of pressure sensitive tapes is available from Polyken Industrial Tape. Information on hundreds of pressure sensitive tapes has been gathered and reproduced in a convenient pocket-size booklet. Each tape number is listed in sequence with the manufacturer's name, and for each tape there is included a description of its construction. This information, compiled in one booklet, is an excellent aid in determining the right tape for a specific job. There is a nominal charge for copies of this booklet.

Write 293 on Reader Service Card

Weather Screen:

The Elwing Corporation tells how you can eliminate costly delays and merchandise damage caused by bad weather by using weather screens. Made of treated fabric and steel and iron clamps and frame, these screens can be attached on any freight car or warehouse door. Complete specifications, drawings and installation photos are included.

Write 294 on Reader Service Card

Carton Bottom Stitchers:

A bulletin from Ideal Stitcher Company gives complete details on the Ideal carton bottom stitcher which produces from 200 to 800 stitched carton bottoms per hour. The variable speed silent V-belt drive is designed to keep the operating speed of the machine to the class of work or the skill of the operator. Included in the bulletin are specifications, photos of component parts, and drawings.

Write 295 on Reader Service Card



DESIGNED For YOU!

"A Model and Size for Every Job"

LANSING PLATFORM TRUCKS

MEDIUM LOADS

Lansing's Spartan (illustrated above) and Reynolds have been known for generations as quality platform trucks that are built to last. Available in several sizes with superstructures built to your specifications.

LIGHT LOADS

The Lansing Easy-Running truck illustrated is ideal for stores, institutions and some warehouses. Its light weight, low cost and easy maneuverability combine to make it tops in its field. Available with either double or single end racks, or with special superstructures.

HEAVY LOADS

Lansing Industrial Trailers that have been in service for over 30 years are still going strong. New Model 895 illustrated is designed to move heavy loads at relatively high speeds.

SPECIAL LOADS

Consult Lansing Company engineers if you have a problem in handling special materials. The Bar Iron truck illustrated is one example of the many special designs created through over 70 years of experience.





See Your Distributor or Write for Catalog.

LANSING, MICHIGAN

Warehouses in 7 Principal Cities.



Since 1881



HAND TRUCKS
PLATFORM TRUCKS
TRAILERS
LIFT JACK SYSTEMS
BARROWS

Circle No. 85 on Reader Service Card for more information

Guide to Better Shipping:

Packaging engineers, shipping superintendents, traffic managers, works managers and others will be interested in "Guide to Better Shipping Catalog" issued by Signode Steel Strapping Company. Latest information on pallets, bundles, crates and in-production-line packaging is described. Suggestions on carloading procedures show newer loading techniques. Also illustrated is a wide selection of strapping tools and equipment for every application.

Write 296 on Reader Service Card

Unscrambler:

Literature from Island Equipment Corporation describes the Island Styl-O-Matic, said to be a completely adjustable unscrambler for bottles, jars, cans and containers. Has a capacity of up to 500 a minute with one or two operators, and can handle any size or shape.

Write 297 on Reader Service Card

Shipping Regulations:

Current shipping regulations on sealing and reinforcing packages with "Scotch" brand pressure-sensitive tapes are presented in a 6-page folder from Minnesota Mining and Manufacturing Co. It contains 13 illustrations showing typical sealing and reinforcing tasks as authorized by the Uniform Freight Classification, Railway Express Agency, U. S. Post Office Department, American Trucking Association, and Export Underwriters.

Write 298 on Reader Service Card

Tape Machine Line:

A booklet which pictures 49 dispensers and taping machines for use with the more than 200 "Scotch" brand pressure-sensitive tapes is available from Minnesota Mining and Manufacturing Company. The 8-page booklet describes hand dispensers; stationary dispensers; portable heavy duty and desk dispensers; definite length dispensers; apron tapers; standard job applicators; and custom built models.

Write 299 on Reader Service Card

Corrosion Inhibitors:

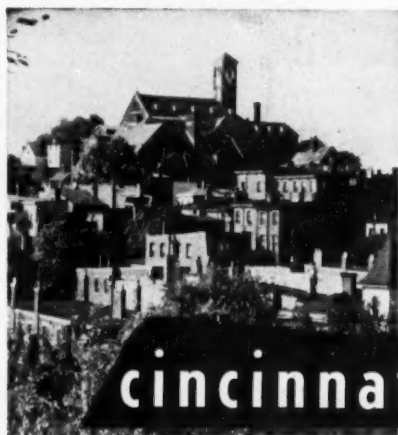
Two illustrated bulletins on volatile corrosion inhibitors, a method of protecting ferrous metals and aluminum from rust and corrosion without using oil or grease, are offered by the Berlin and Jones Co., Inc. Technical Bulletin VT-1 serves to outline the fundamentals of corrosion inhibitors, while General Bulletin GB-1 deals specifically with Berlin and Jones DryVapor Pack-velopes.

Write 300 on Reader Service Card

Tape Sales Manual:

Hudson Pulp & Paper Corp. has released a Blue Ribbon Super-standard Gummed Tape sales manual titled "There's More Money for YOU Selling Blue Ribbon". The manual is planned and illustrated to aid the salesman in the selection of prospects and markets, in determining how Blue Ribbon will solve the prospects' various taping problems and in the demonstration of the product.

Write 301 on Reader Service Card



● MT. ADAMS, one of the oldest settled areas of Cincinnati's "7 Hills". Here live many of the highly skilled, happy workmen who take pride in producing some of the world's finest machine tools, valves, soap, pianos - engineered conveying systems - A-F Completely Co-ordinated Conveying Systems.

cincinnati

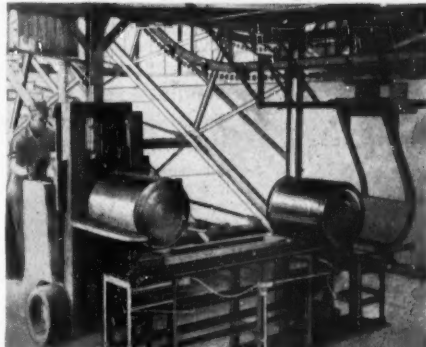
home of

ALVEY-FERGUSON

the original - Since 1901

engineered conveying systems

After removal from truck-side cars, barrels of compound are loaded onto the Alvey-Ferguson chain conveyor feeder which starts them upward by means of the A-F Over-head Trolley to a completely co-ordinated plant wide conveying system.



Alvey-Ferguson engineers all types of conveying systems for all types of industry. Write, without obligation, for a discussion - today.



THE ALVEY-FERGUSON COMPANY

437 Disney Street, CINCINNATI 9, OHIO • OFFICES OR REPRESENTATIVES IN PRINCIPAL CITIES
Circle No. 7 on Reader Service Card for more information

Do You Have Safety Problems in Your Business?

*Here's the
Answer!*

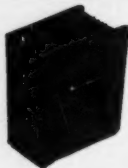


If you employ people, you *have* safety problems. And they can be mighty expensive ones. Injuries and illnesses cost you money two ways: 1) work-sustained disabilities are compensated for, according to your state law, out of your pocket; 2) absence from the job costs even more in lost production, training replacements.

Safety can cut your costs—no matter what business you're in, regardless how many people you employ. And here's your guide to dollar savings through accident-prevention. Its 10 separate sections cover every phase of industrial safety and health, from Aluminum dust hazards to Zirconium's toxic properties.

It will tell you what the dangers are and how to eliminate them from your operations.

The Industrial Safety & Health Handbook is bound in a heavy-duty binder—and it has to be. It's made for continual, rough use: you'll soon find it the most valuable book on your desk. Its nearly 300 pages are indexed and color-tabbed for fast reference. You can get an immediate answer to any safety or health problem that arises. If you have no safety engineer, you'll need this book more than ever.



The Handbook is an authentic reference for fundamental facts on all phases of industrial safety. Indexed for quick reference.

The Handbook gives you an immediate answer to any hazard elimination. It gives you fast non-technical information on hundreds of safety and health threats—and tells how to prevent them.

The Handbook is a compendium of all phases of safety education, written in non-technical language. Valuable source material for seasoned safety men, ideal background for men new to safety work.

This Handbook, published by Industrial Book Co., has been written and prepared by its affiliate, Occupational Hazards, Inc.

INDUSTRIAL BOOK CO.
1240-F Ontario St.
Cleveland 13, Ohio

Gentlemen:

Please send me _____ copies of the new Industrial Safety & Health Handbook at the price of \$25 per copy.

(Check or money order enclosed _____ Bill me _____)

Name _____

Title _____

Company _____

Street _____

City _____ Zone _____ State _____

MEN IN THE NEWS . . .

(Continued from page 23)

. . . at Caterpillar Tractor Co.

Announcement of the appointment of **Burt Powell** as advertising manager has been made by **W. K. Cox**, manager of the sales promotion department.



Burt Powell

Powell, a former city editor of the Peoria Journal, has been with Caterpillar since 1935, and since August, 1949, has held the position of assistant advertising manager to Mr. Cox, whom he succeeds. Cox recently was named to head the sales promotion department of which advertising is a division.

. . . at Westinghouse Electric Corp.

Three key appointments have been made in the industrial relations department, according to **Robert D. Blazier**, vice president in charge of industrial relations. **Harry A. Hillman** is director of wage and salary administration; **T. O. Armstrong** is director of training, and **Harry G. Cook** is the new director of personnel services.

. . . at General Box Co.

S. F. Talbert, president, announced the election of **W. T. Blackburn** as vice president of the Continental Box Co., a subsidiary. He joined the firm in 1948 as a salesman and has advanced rapidly through the organization.

. . . at American Engineering Co.

W. C. Miles has joined the company as assistant general manager. He had previously gained a wide reputation in the tool engineering field as assist-

ant to the vice president of manufacturing at Martin Aircraft Co. and as vice president and general manager of the Skyline Corp.

. . . at Mechanical Handling Systems

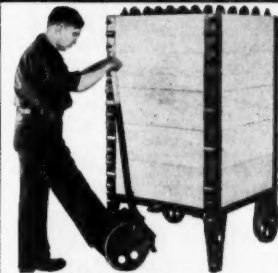
Leonard Schmitz has been appointed chief engineer of the company. He has had 11 years conveyor engineering experience with the company. His

new responsibilities include development of new products, quality control and production methods.

. . . at Republic Steel Corp.

Charles E. Howes has been appointed general manager of sales for the Berger Mfg. Division, according to **L. S. Hamaker**, Republic's general manager of sales. He succeeds **R. W. Helms**, who has been

THE TURNER SYSTEM OF MATERIALS HANDLING



"Deliver the Bin and Save the Handling" with Bin Sections on Turner Transport.

"Only the Rich Can Afford to Buy Something Cheap"

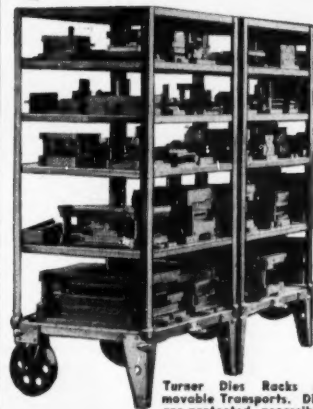
Do you buy **PALLETS** to **USE** or to **throw away**? Turner 8-way stacking Pallets are built to "take it" through year after year of rough handling. Check **YOUR** pallet costs over a period of years. Compare with **TURNER PALLETS** — you'll save on every one you buy!

Leading firms come back for additional Turner equipment. It's a sound investment.



TURNER PALLETS LAST FOR YEARS

Stacking Pallet with Floor Plate Deck illustrated. Also available with wooden or flat steel deck.



Turner Die Racks on movable Transports. Dies are protected, accessible, always available.



GET THE FACTS IN THIS FREE BOOK

Write today for your copy. Fully illustrated. Completely outlines the **TURNER SYSTEM** for big savings in materials handling.

FACTORY SERVICE COMPANY

4607 N. TWENTY-FIRST STREET MILWAUKEE 9, WISCONSIN

Circle No. 51 on Reader Service Card for more information

Circle No. 60 on Reader Service Card for more information

*Pays for itself in
Less than 100 days*



FRIED
Stripveyor
Patented
makes sheet handling
wholly mechanical

Automatically picks up cut strips, conveys them beyond shear bed. Makes shear 100% efficient. Adjustable to any height up to 45"—synchronous to shear speed—handles any gauge sheet up to 3/8", widths as wide as allowable by standard 20" back gauge, lengths to size of shear. Portable! Caster-supported carriage supplied with floor locks.



FRIED
Liftveyor
Patented

Enables clean-cut wide shearing to .005" regardless of material. Eliminates flexing—supports sheet from underside while sheet edge is against back gauge—then conveys it beyond shear frame. For sheet or plate up to 3/8" thick.

For complete
strip handling convenience
add **FRIED** Strip-Stacker to
Liftveyor or Stripveyor.
Write for full details today!

SHEAR TO .005"

FRIED
Liftveyor
Patented

FRIED STEEL EQUIPMENT MFG. CORP.
528 EAST 119th ST., NEW YORK 35, N. Y.

MEN IN THE NEWS

Continued

made assistant general manager of sales for the entire Republic organization. D. E. George succeeds Howes as manager of sales in the steel equipment division.

... at Bulldog Pallet Co.

Roy Sjolund has joined the company as production manager, according to **Richard M. Duff**, president. He formerly was plant superintendent of the Larson Ladder Co.

... at St. Paul Hydraulic Hoist Co.

Warren A. Blossom has been named service manager, according to **Leo M. Brown**, sales manager. Blossom has been with the firm for 12 years in the production and engineering departments.

FAMOUS "CHEM-BOARD" CONVOY TOTE BOXES



*Chemically Hardened
Corrugated Board

SOLD THROUGH LOCAL INDUSTRIAL DISTRIBUTORS

Cost—weigh—50% to 60% less than steel. A wide range of sizes in standard and custom made **NESTING, STACKING, VERTICAL TOTE BOXES**. Write for complete information, prices, name of distributor in your area.



CONVOY RECORD STORAGE FILES
Sold Only by **YOUR LOCAL STATIONER**
Used by most famous names in industry and businesses of all kinds. **CONVOY "CHEM-BOARD"** files for record storage made in letter, legal, and 12 other sizes. Stack to ceiling, mate together. Call your local stationer or write for name of stationer nearest to serve you.

CONVOY, INC.
Canton 6, Ohio
P. O. Station B, 216-F

Circle No. 37 on Reader Service Card for more information
162

where
heavy loads
damage
floors...or



**WHATEVER
STRONG FLOORS
ARE ESSENTIAL...**

DYNAPAKT* CONCRETE is installed with heavy-duty power driven machines to provide a topping of unsurpassed resistance to wear. Proved in use. Find out the experience of those who have installed this flooring.

DYNA meaning forceful
PAKT meaning densified



For complete information
write
FLASH-STONE COMPANY, INC.
3723 Pulaski Avenue
Philadelphia 40, Pa.

any type of industrial floor
...installed anywhere!

Circle No. 99 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

... at Cambridge Wire Cloth Co.

New officers recently elected by the board of directors include **Edward N. Evans**, president; **Irwin F. Pink**, senior vice president; **Fred L. Hooper**, executive vice president; **Harold E. Pink**, secretary, and **Nina E. Pink**, treasurer. **Clarence E. Pink**, former president, has been named board chairman and chief executive officer.

... at Mechanical Handling Systems Inc.

Charles W. Casgrain II and **E. E. Saperston** were named new members of the board of directors at a recent annual meeting, according to **W. V. Casgrain**, president. Re-elected to the board were **W. V. Casgrain**, **James B. Angell**, **Leonard J. Bishop** and **C. Henry Haberkorn Jr.**

... at B. F. Goodrich Co.

Retirement of **James J. Newman** as vice president of the company on July 1 was announced with sincere regret by **John L. Collyer**, president. Newman had served as vice president for 20 years.

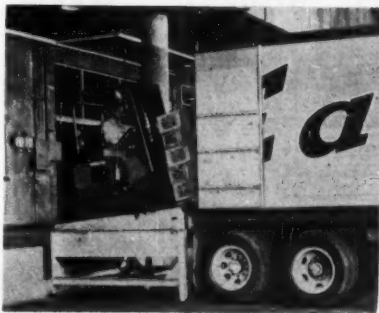
... at Chain Belt Co.

W. N. Konrad has been named product supervisor over the company's line of Rex Sanitation Equipment. He joined the company in 1948 as a student engineer and in his new post will handle the development of its sanitary conveyors.

... at Fruehauf Trailer Co.

The election of **Carl J. Koelsch** as vice president of the company has been announced by **Roy Fruehauf**, president. He has been director of purchases since 1951. Other appointments at Fruehauf include those of **H. R. McCluckie** as branch manager in Kearny, N. J.; and **E. A. Harrison** as sales manager of the Providence branch factory.

Will the Ramp You Contemplate Buying Stand Up Under Constant CRASHING Impact Loads of 30 Tons?



The Model D Dock-Master—5500 lbs. of welded indestructibility—is specifically designed and built to take these terrific impacts—day in and day out—year after year—without a cent of expense. (Just ask any Dock-Master user.)

Better be sure and buy Dock-Master—the toughest hydraulic ramp built.

Hand operated or electric powered, you can not buy a better ramp than the Model D Dock-Master.

Both the Hand Operated and Motorized Units are Absolutely Complete in Themselves.

Hand Operated

To put in service:

Just set in place and it's ready to go—absolutely nothing else has to be done.

No fancy plumbing. No complicated electrical installations. No underground tanks. No air compressors. No special hinges. No special dock construction. No special anything—just set them in place—that's all!

Motor Driven

To put in service:

Set in place—plug in to 110 or 220 volt outlet—and it's ready to go—absolutely nothing else has to be done.

The **MODEL D DOCK-MASTER**
Was Designed, and Is Manufactured, Solely by

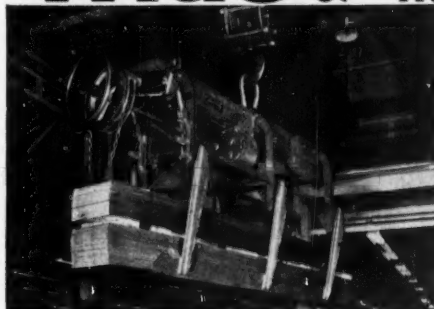
WILLIAM EHLERS

One of the Oldest Producers of Hydraulic Ramps in the U. S. with representatives in strategic points throughout the United States and Europe. Write for the address of the one nearest you.

Phone ORchard 2-4163
P. O. Box 495 • Inglewood, California

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Wide or Narrow...



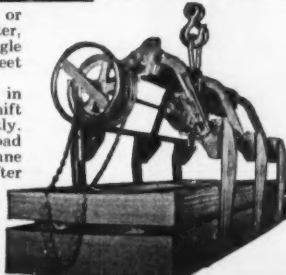
**1 C-F
LIFTER
HANDLES
THEM ALL**

Whether your production requires a few or many widths of sheet steel, 1 C-F Lifter, with its wide range of jaw and carrying angle adjustments will probably meet all your sheet handling requirements.

Adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes almost instantly.

Because it can pick up, carry and unload more loads per hour, using less man and crane time than any other method, a C-F Lifter will soon pay for itself.

Bulletin SL-28 gives you the complete story of C-F Lifter advantages to you. Ask for it today. There's no obligation.



CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

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Circle No. 132 on Reader Service Card for more information
ON YOUR "METTLE"...GET SET...go!



WITH
"George"

"George" is a compact, strong roller truck designed to handle metal-loaded tote boxes easily. The handle, with attached hook, provides leverage to glide tote box over beveled edge of truck onto upper set of rollers. Load is safely held. A gentle pull easily gets truck under way to destination on lower set of rollers.

No dangerous lifting... no strain. Built for long life at low hourly cost. Most plants can use several — large plants, many. One plant bought 150 units. Get yours!

*TRADEMARK

LET "George" DO IT



Write for free folder P
 ROLOCK Inc. • Fairfield, Conn.

BOX MAKER . . .

(Continued from page 136)

grades. Estimated production of the equipment is over a million cartons per year.

How to make a Carton

When the operator of the machine receives an order for a given quantity of a certain size box (inside dimensions and style of box are provided to him), he has to make only a few simple adjustments to get into production. At the front of the machine, he pushes a button marked "adjust". It is a safety control inactivating the machine during the setting operations.

Through electrical controls, he then moves slitter and scoring rolls according to the specified box depth and flap width dimensions. Four sliding scales set the width and length panel dimensions and the cut-off dimension.

After adjustments have been made, the machine is ready to

Lift HEAVIER Loads HIGHER the SAFE WAY

NEW Safeway ELECTRIC FORK LIFT TRUCKS

- ✓ 3 sizes offer 68", 80", or 100" lifting heights—rated at 1250 lbs. lift.
- ✓ Powerful hydraulic system activated by auto-type battery. Built-in charger with automatic cut-off, trickle charge.
- ✓ Electronic switch cuts off power at maximum height — prevents jarring load, damage to hydraulic system.
- ✓ Touch control—PUSH to lift, RELEASE to hold, PULL to lower at any speed.
- ✓ Safety hand-operated brakes prevent movement when loading or unloading, provide positive control on inclines.
- ✓ Ruggedly built, easily maneuvered, for long life, efficient one man operation. Load, unload, stack or move materials faster, easier, more safely.

"Snap on" Platform a plus feature
 Write for Complete Details

Safeway INDUSTRIAL EQUIPMENT CORP.
 184 N. FRANKLIN ST.
 CHICAGO 6, ILLINOIS

Write or Phone for Demonstration
 Phone: RAndolph 6-1684 Chicago

BIG VALUE LOW COST

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 164

INTERCHANGEABLE READY-POWER OFFERS 4 IMPORTANT ADVANTAGES

OVER OTHER GAS-ELECTRIC DRIVES



- 1 Only Ready-Power Units can be quickly changed. Installation takes just 5 minutes!
- 2 Only Ready-Power can be shifted from one truck to another.
- 3 Only with Ready-Power can trucks be kept working with quick change of power units.
- 4 Ready-Power's low engine speed means longer life, lower maintenance.

Remember . . . Your Truck is No Better Than Its Power!



The READY-POWER Co.

3838 Grand River Ave., Detroit 8, Michigan
 Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel Electric Power Units for Industrial Trucks

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FLOW • SEPTEMBER, 1953

Trojan TRACTOR FOR POWER TRAVEL

and
walk
along
with
the load →



Write for Bulletin 810.

With a simple, draw-bar attachment, the Trojan quickly converts slow, hand-travelled hoists, small cranes, and other material handling units to fast, power-travel. Save time and effort; speed up production.

DETROIT HOIST & MACHINE CO.
48th Year—Designers & Manufacturers
Hoists and Cranes Since 1905
8239 Morrow St., Detroit 11, Mich.

run, and the operator pushes his control buttons back from "adjust" to "run".

Feeding of corrugated sheet stock is the only manual operation involved in the manufacture of boxes at Western Electric. The operator holds the stock firmly against a stock edge guide on the in-feed table. The board passes under and actuates a roller arm limit switch attached to the edge guide, which allows feed and creasing rolls to rotate at high speed, thereby controlling the passage of board through the machine, both as to speed and accuracy.

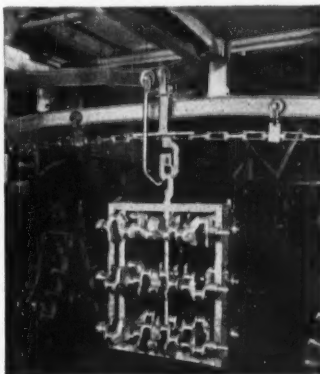
As the board moves through the machine, the leading edge strikes and depresses the first of a pair of limit switch trippers on the width and length scale rails. It throws the feed rolls into low speed for movement of 1½ in. to the second tripper. The depressing of the second tripper stops the feed rolls completely and also actuates slotter knives for the body scores and slots.

When knives reach the bottom of their strokes, an electric timing device is actuated, retrieving the

Trans-Free Automation



Trans-Free Conveyor System—automatically transfers loads from main Live Line to Free Lines—and back again.



One of the intermediate production stations in the Allied Trans-Free Conveyor System, showing a rack of parts being transferred from the Live Line to the Free Line.

At various locations production parts can be automatically removed from the main Live Line to adjacent Free Lines. At these points, intermediate production operations are performed. Upon completion, the loads are automatically transferred back to the main Live Line.

The Allied Trans-Free System is applicable to any type of product, large or small.

Allied are specialists on *Automation* and highly engineered *Load Transferring* material handling systems. Consult with our engineering staff on material handling problems that arise in your plant.

See Allied Catalog
932 in Swent's
Mechanical Industries
or write us for a copy.



ALLIED
STEEL AND CONVEYORS, INC.

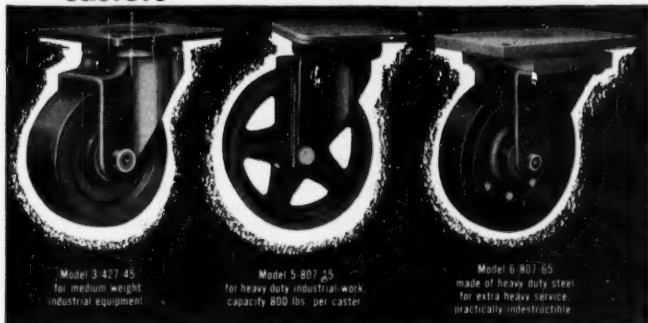
17357 HEALY AVE., DETROIT 12, MICH
Complete Material Handling Systems
Designed • Fabricated • Erected

Circle No. 5 on Reader Service Card

FAST... EFFICIENT materials- handling

with 
casters

There's a COLSON Caster designed to meet every industrial materials-handling requirement—*exactly*. Old, bumpy hard-to-handle equipment can be restored to its original efficiency quickly and economically with COLSON Casters. Other COLSON materials-handling equipment includes hand trucks, barrel and drum trucks, platform trucks and lift-jack systems. Write us or consult the yellow pages (under "Casters" or "Trucks, industrial") for the COLSON office near you.



Model 3 427 45
for medium weight
industrial equipment

Model 5 807 25
for heavy duty industrial work,
capacity 800 lbs. per caster

Model 6 807 65
made of heavy duty steel
for extra heavy service,
practically indestructible

Write for new
catalog "COLSON
Trucks and Casters"

THE COLSON CORPORATION
CINCINNATI, OHIO
CASTERS • LIFT-JACK SYSTEMS • INDUSTRIAL TRUCKS

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FLOW • SEPTEMBER, 1953

HOUSE'S UPANOVER

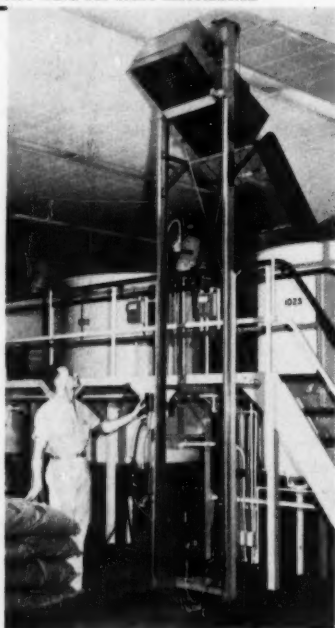
Portable Balanced Load Skip Hoist Lifts and Dumps bags, barrels, drums, special containers, or materials in bulk.

Any Free-Flowing Material.

Now accepted in food, chemical, plastic metal-working, and other industries, where materials must be lifted and dumped into tanks, bins, etc.

The unit illustrated is bulk dumper (capacity 200 lbs.).

UPANOVER—works to save labor and compensable injuries.



JACOB HOUSE & SONS

Founded 1891 52-54 St. Paul Street, Buffalo 9, N. Y. U.S. Patent #2549609

BOX MAKER

Continued

slotter knives from the board and re-starting high-speed operation of feed and creasing rolls.

The same operation is repeated for second and third slots. The last two scale trippers on the machine cause the cut-off knife to operate instead of the slotters. After cut-off, the machine again operates at high speed, for by this time the next box blank is ready to pass into the feed rolls. If additional board has not been fed into the machine and under the roller arm limit switch on either the feed or take-off side, the machine will stop.

A conveyor belt takes the finished blanks off the machine and drops them on a pile or on a skid, ready to be folded and taped or stitched. Two hand tapers at the take-off end of the box-making machine tape the joints.

Boxes intended for immediate use can be set up and moved on conveyors directly to packers while those for later use are skidded flat.



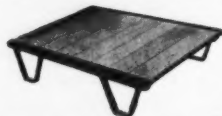
A MARIETTA concrete stove silo is the key to an efficient materials-handling installation. These systems are engineered and erected to improve handling facilities and to lower operating costs. There's no limit to the capacity or to the materials-handling equipment that can be incorporated into the walls, floor or roof of a MARIETTA silo. For complete data and construction details, write for Bulletin 4393.

the Marietta Concrete corp.

MARIETTA, OHIO

Branch Offices: 501 Fifth Avenue, New York 17, N. Y. • Pulaski Hwy. at Race Rd. Baltimore 21, Md. • 805 Bessemer Bldg., Pittsburgh 22, Pa. • Hollywood, Fla.

In production or in storage IRONBOUND EQUIPMENT HANDLES SMALL PARTS MORE EFFICIENTLY



Standard 2-way entry bolted type skid built to handle loads up to 5 tons.



Standard box top welded to standard skid. Available too, with removable boxes. Handles many items in production and storage.



Flexible arrangement of boxes and skids permits tiering and stacking to meet your individual requirements. Provides quick availability, easy handling, or storage for complete units or parts.

Each of the units illustrated has an important use in modern industry. Ironbound skid platforms and box tops are prime sources of increased plant capacity so vitally needed today. Our representative can help you to increase your output and plant space. Catalog GP-7 may help you, too!



IRONBOUND

BOX & LUMBER COMPANY

Materials Handling Division

30 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS
Circle No. 80 on Reader Service Card for more information.

FLOW • SEPTEMBER, 1953

OVERSEAS SHIPPING . . .

(Continued from page 131)

9. Mark your packages correctly, clearly, concisely, and in the language of those who will probably handle them. Avoid excessive markings as they tend to confuse.
10. Include a note on every invoice to the receiver requesting a report as to the condition of your shipment on arrival. It will provide valuable data for your future operations, and will show your customer that you are interested in his continued good will.

Contract Packagers

Packaging and packing for overseas shipment have become so specialized that in many cases, it is of advantage to turn a product over to a contract packager to do the job. With regard to military bids, where the military production is not a manufacturer's basic and regular business, it might be to his economic advantage to turn this relatively short run operation over to a contract packager who specializes in such matters.

Contract packaging firms point to a number of advantages which you can expect to result from use of their services. They are: 1. Since most packaging firms are located at or near ports, you can look forward to a saving in inland freight from the source of manufacture to the port on the tare (the heavy export box) by virtue of the large volume of packaging they do, contract packagers can usually save on lumber and materials; experience and know-how resulting from many previous jobs go far toward assuring good results every time; minimum cubage is almost certain to result, with lower cost of freight permitting the manufacturer to be better able to meet competition in world markets.

One export packaging company has reported entering into a contract with a west coast engineering firm which is to build an entire oil refinery and pipe line in Turkey. All components of this installation will be purchased from manufacturers throughout the United States

Circle No. 58 on Reader Service Card for more information

FULLY AUTOMATIC!

A Loader with a Mechanical Brain!



SELF-STARTING

LOAD-O-MATIC*

* Pat. App. for

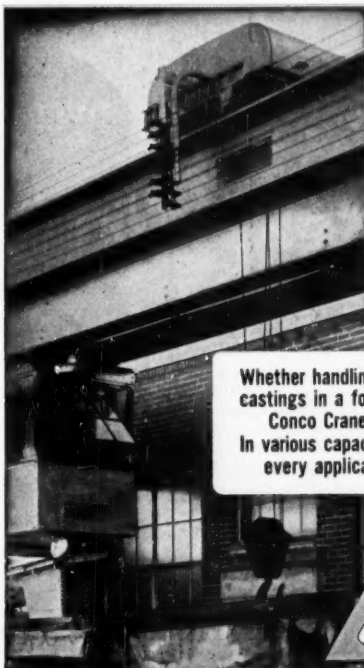
SELF-LEVELING

New, revolutionary loading platform automatically carries loads from loading dock to truck floor, whether truck is above or below dock. Can also be installed at ground level. Motion controlled by switch bar in platform and by self-leveling ramp. Human element eliminated! No hand switches!

Exact levels! Models 6000 to 20,000 lbs. Write for descriptive literature.

SELF-STOPPING

FIELD ENGINEERING CO., 66 Foote Ave., Jamestown, N.Y.



*First
for
Performance*

Whether handling steel in the yard, castings in a foundry, or servicing a machine shop, Conco Cranes rate first for performance. In various capacities and spans, a type for every application. Write for details.

CRANES HOISTS

CONCO

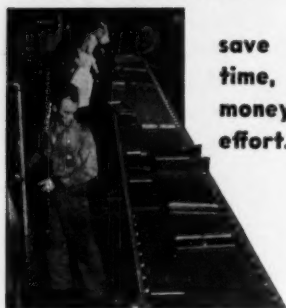
CONCO ENGINEERING WORKS

Division of H. D. Conkey & Co., 38 Grove St., Mendota, Ill.

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Circle No. 56 on Reader Service Card

STREAMLINER CONVEYORS



save
time,
money,
effort.

Any one of several types of "Streamliner" Conveyors can appreciably reduce your unit handling cost . . . Production Department . . . Shipping . . . or Storage Rooms—no matter where, a "Streamliner" Conveyor can be made to fit your handling operations. Get complete details today. Write for literature.

Harry J. Ferguson Co.

121 WEST AVE., JENKINTOWN, PENNA.

OVERSEAS SHIPPING

Continued

and will be shipped to the contract packager's plant in New York where they will be consolidated and boxed for export. It is an undertaking which will take two years to accomplish.

The problems involved in packaging for export are many and complex, to say the least. They can be solved however, as has been shown in the preceding article. No matter how small, how big, how bulky, how fragile, or how improbable your product might appear from the standpoint of preparing it for export, a way to ship it safely, quickly and economically can be found.

FLOW'S thanks to the following for assistance in the preparation of the preceding article; Cargo Packers Inc.; Jerome F. Gould Corp.; National Wooden Box Association; Overseas Packing and Processing Co.

Circle No. 104 on Reader Service Card

MERRILL MATERIALS HANDLING DEVICES

4 SIZES

LIFTING CLAMP • TWIN LIFTER

HAND GRIP • DRUM TILTER

4 SIZES

3M-4 DRAG CLAMP • DRUM OPENER

MERRILL BROTHERS
56-35 ARNOLD AVENUE
MASPETH, N. Y.

KRANE KAR
SWING-BOOM MOBILE CRANE

**SAVED US
\$3824.24 IN
8 MONTHS,"**

Says V. James DeNaples,
TECHNICAL SERVICES FOREMAN,
NORMA-HOFFMANN
BEARINGS CORP.

1½, 2½, 5, 10,
& 12½ ton cap.

"THIS VERSATILE YARD CRANE simplifies our materials-handling," says Mr. DeNaples, "cuts operations and travel trips, saves us a considerable amount of work and time. Our **KRANE KAR** speeds unloading of incoming materials . . . transports and stacks them at storage . . . loads them on floor trucks for delivery inside (long shafts of tubing, stacked bearing ring forgings, 800 and 1000 lb. coils of steel strip). Also loads outgoing scrap and waste drums on trucks and gondolas; tows sludge wagon from grinding waste chute to waste dump, up-ends it, tows it back." **MONTHLY NET SAVINGS—\$478.03!**

Gas or diesel, 9 to 37 ft. booms or adjustable telescopic booms; pneumatic or solid rubber tires; electric magnet, clamshell bucket and other accessories.

Ask for Bulletin No. 89

SILENT HOIST & CRANE CO., 888 63rd ST., BROOKLYN 20, N.Y.

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168

RITE-HITE

Presents
A Self-Contained
Adjustable Loading Dock

The new model 72-U was designed to meet the need for a completely self-contained unit. It can be anchored in front of existing dock facilities or recessed within your present dock.

CHECK THESE FEATURES

- Precise Carrier to Dock Alignment
- Safety Curbs and Treads
- Finger-Tip Adjustment
- One-man Operation
- ✓ No Fluid or Electric Controls
- ✓ No Lubrication Necessary
- ✓ No Piping
- ✓ No Motors

Rite-Hite's Also Available in Other Standard Models

• Write for literature

LOOMIS MACHINE CO.
RITE-HITE DIVISION

Dept. 16, CLARE, MICHIGAN

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NEW EQUIPMENT . . .

(Continued from page 48)

Stack Pallet

A new double faced pallet to fit into rack assemblies is designed by the Stackbin Corporation to improve fork truck handling of parts and materials. The bottom of each pallet interlocks with the top of Stackrack assembly so that the palletized units may be safely stacked one above the other. The pallets are made of heavy gauge channel and formed steel. They eliminate one

step in mechanical handling.

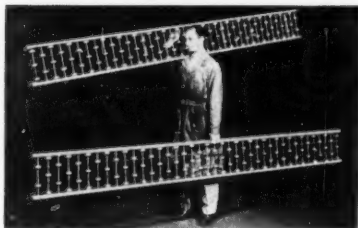
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Hardened Board

Smooth front faces for record storage files are made possible by chemically treating corrugated

Speedways gives you important EXTRAS

with the
NEW
Aluminum
Gravity
Wheel
Conveyors



EXTRA Portability: The feather-lightness makes them easier to lift and move. Cuts set-up, knock-down and slow-away time, makes even your smallest-sized worker capable of handling these conveyors with complete ease and safety.

EXTRA Strength: 22 1/2% lighter than steel, yet stronger, tougher and with the same capacity of steel conveyors. They'll move 850 lbs. of live load per 10 linear feet!

EXTRA Utility: Speedways Aluminum Gravity Wheel Conveyors will work for you in every phase of your material handling, plus having extra utility in danger areas where the non-sparking aluminum frames help reduce hazards.

EXTRA Savings: Add up these extras! They mean savings in material handling costs . . . in labor time . . . They mean reduced accidents and production speed-up.

GET THESE EXTRAS—with SPEEDWAYS NEW ALUMINUM GRAVITY WHEEL CONVEYORS

See your SPEEDWAYS Distributor or write today for new Aluminum Gravity Wheel Conveyor Bulletin. No obligation, of course. Write Dept. F-9



202 RHODE ISLAND ST.
BUFFALO 13, N. Y.
Also mfg. in CANADA,
UNION of SO. AFRICA

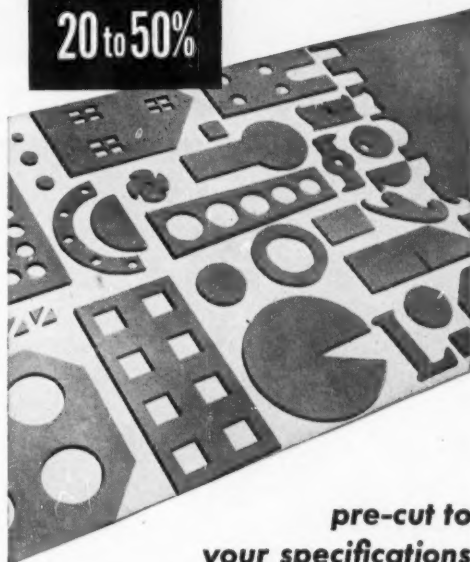
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SAVE

as much as

20 to 50%

get Upson
panel parts



pre-cut to
your specifications
and ready for assembly

Upson's specialized facilities for large volume, low cost production of cut-out panel parts have reduced handling and assembly costs—minimized waste, shipping and storage costs—for manufacturers in many different fields. Pre-cut parts can be had in any size from one inch square to 8 x 18 feet—with all necessary holes, openings, outline cuttings—in the exact size, shape, grade, thickness and even the finish that you require. Often several of these operations can be combined to reduce costs still further. It will be worth your while to investigate the quality and low cost of Upson pre-cut panel parts—especially if you are now punching, drilling or cutting such parts by ordinary shop methods. We will gladly quote on finished samples made to your specifications. Write us your requirements (or problems) or mail the coupon for more detailed information.

THE UPSON COMPANY
749 Upson Point,
Lockport, New York



UPSON

QUALITY
YOU CAN
TRUST

Send me your free booklet, "Better Fibre Board Parts and Cut-outs."

Name _____

Company Name _____

Street _____

City _____ State _____

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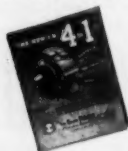
New! 4 in 1

REVERSING TRANSMISSION



in a single unit for quick, smooth reversing under full load

This remarkable new type of reversing transmission—by one of the world's most famous gear makers—offers the design engineer a wider latitude in transmission performance, as well as new economies in materials and assembly, heretofore unavailable with ordinary transmissions. Its application is practically unlimited, thereby increasing the versatility of the equipment in which it is installed—particularly in materials handling equipment, farm implements and construction machines. There's no doubt about it. You can't afford to overlook these exclusive S-N features and savings. You can use them and so can your customers!



Our 50 years of specialized knowledge and experience as gear designers and manufacturers is at your service. Why not let us help you with your problems? Write today for our new Model 5108 folder or specify your needs, stating application, input and output speeds desired, H.P., power source, equipment to be driven.

SNOW-NABSTEDT

Transmission Engineers
FOR NEARLY HALF A CENTURY

INDUSTRIAL DIVISION

THE SNOW-NABSTEDT GEAR CORP., HAMDEN, CONN.



Circle No. 142 on Reader Service Card for more information

170

board to produce hardness and strength, according to Convoy Inc., which developed the new treatment process. The process not only adds strength and durability but also eliminates stitching on the front faces of record files. The smooth front improves mass appearance to permit the use of files in the front office.

Circle 214 on Reader Service Card for more information

"Hi-Lode" Palletainer

Extra capacity for bulky materials, along with rigidity and solidity in stacking, is claimed for "Hi-Lode", a new model in the Palletainer line of the Union Steel Products Company. Extra capacity for bulky materials is provided through elimination of under carriage center legs and leg braces. "Hi-Lode" has malleable steel corner legs and interlocked U-channel beams. Construction is of welded, reinforced steel rods. Available in 2,000, 4,000 and 6,000 pound capacity, the new Palletainer folds to one-fifth space when empty, to save freight charges on return trips.



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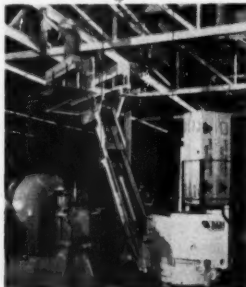
Replaceable Solid Tires

A new heavy duty demountable industrial solid tire as optional original equipment on many makes of trucks has been made available by United States Rubber Co. Tires can be changed in the field in about 10 minutes time. No extra wheels are needed, and no special maintenance training is necessary to make the change and downtime is said to be virtually eliminated.

Circle 216 on Reader Service Card for more information

New Lift-A-Loft

Reduction in the cost of maintenance work at high elevations without disturbing workmen on the floor is the objective of the new Lift-A-Loft unit manufactured by the Barrett-Cravens Company. It eliminates step ladders and scaffolding. One man riding the battery-powered unit pushes a button and is up in the air ready for work. The platform carries cleaning solution, water and every-



FLOW • SEPTEMBER, 1953

thing else he needs for a day's work. Fully raised, the Lift-A-Loft platform is 12 feet 8 inches above the floor. In cleaning and replacing fluorescent lamps in a precision gear manufacturing plant, one man with a Lift-A-Loft accomplishes in 10 minutes maintenance work which formerly required two men one hour, according to the manufacturer.

Circle 217 on Reader Service Card for more information

Adjust-A-Fork Truck

Five standard fork lengths—30, 36, 42, 48 and 60 inches—may be used on the Turnabout Adjust-A-Fork hydraulic lift truck of the Rack Hydraulic Equipment Corporation. The truck and forks may be purchased individually. The truck frame may be adjusted to provide 25 or 27-inch fork position widths. The truck has a capacity of 2,500 pounds, weighs 299 pounds and has a 270-degree steering arc. It has a lowered height of 3¼ inches and a 4-inch lift. A heavy duty floor lock in the base of the handle securely brakes the lock.

Circle 218 on Reader Service Card for more information

A BETTER WAY... TO MOVE MACHINERY AND HEAVY EQUIPMENT

THE MIGHTY

MULTITON ROLLER SKID

UNLIMITED CARRYING CAPACITY

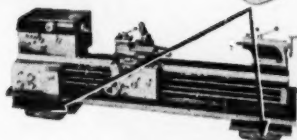
EASILY STORED

EASILY HANDLED

LIGHT WEIGHT



Pat. Pending



Typical of the many
MULTITON uses...

The first important advance in heavy equipment moving in years! MULTITON moves machinery and other heavy equipment easily — with great savings in labor. Just set tremendous loads on MULTITON and roll away.

**DEALER
INQUIRIES
INVITED**

Write for Bulletin F

STOKVIS & EDERA & CO., INC.

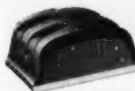
95 MADISON AVE., NEW YORK 16, N. Y. • MU 3-4935

Circle No. 146 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

U.S. ROYAL INNACUSH



COMPARE-IT SAVES!



OUTSIDE—rugged chip-resistant tread.
INSIDE—soft shock-absorbing cushion. This exclusive, fully-cured double-tread means big money-savings to you. Know why—see the comparison proof!

COMPARE—SOFTER RIDE!



CONVENTIONAL SOLID. Note jittery white line—actual pattern traced on film by light on truck's axle. See how floor irregularities jolt truck, jar load, fatigue driver.



'INNACUSH. Same truck, same trip—but what a difference! Now white line's evened out—floor's "planed off"—bumps soaked up. Vehicle, load, driver roll smoother, safer!

COMPARE—GREATER TRACTION! COMPARE—LONGER WEAR!

See the tread-print proof



CONVENTIONAL
SOLID



INNACUSH
TIRE

48% more tread contact with Innacush! More grip-power increases load-safety on slick surfaces, over obstacles, up and down inclines.

White areas show amount of wear



CONVENTIONAL
SOLID



INNACUSH
TIRE

50% more rubber in Innacush—lengthened life! See above tires after equal service. Conventional solid—ready for replacement. Innacush—many miles left!

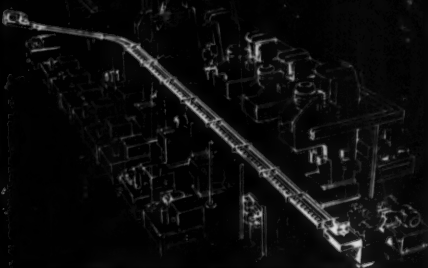
Want full proof? Write:

UNITED STATES RUBBER COMPANY

1230 Avenue of the Americas, New York, N. Y.

Circle No. 181 on Reader Service Card for more information

NATCO selects HAPMAN TUBULAR CONVEYOR TO REMOVE ALL CHIPS from 98-operation HOLEWAY MACHINE



AUTOMATIC CHIP REMOVAL IS ESSENTIAL while this machine mills, trepans, drills, counterbores, reams and chamfers a cylinder block every 1.1 minutes!

SO NATIONAL AUTOMATIC TOOL CO. SELECTED A HAPMAN Tubular Conveyor as an original component for the unit. With its Neoprene Flights and patented Sealed-Pin Chain, this Conveyor provides the engineering excellence required for such an important investment.

HAPMAN CONVEYORS CAN DO THE JOB on many of your machine tools, sludge tanks and other equipment too! On new machines—or added to existing equipment—they'll convey almost any bulk flowable material in your plant at big savings!



Conveyor cross-section shows Flights and Sealed Pin Chain.



GET FULL DETAILS. WRITE FOR BULLETIN P-953

Hapman CONVEYORS, INC.
DIVISION HAPMAN DUTTON COMPANY
KALAMAZOO MICHIGAN

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172

Hydraulic Ramp

Designed to take constant crashing impact loads of 30 tons, the new Model D Dockmaster all-welded ramp is 8 feet overall in width and is built for any specified height. The width is great enough to carry two fork trucks at one time, as shown in the illustration. Either hand or electrically operated, the ramp can be raised or lowered 24 inches at the forward end. The gap plate can be extended 12 inches. The capacity of the gap plate and the ramp is 10 tons with an ample safety factor. In the hand operated unit hydraulic pressure is supplied by a double acting Blackhawk (P-63) pump with a removable handle. In the motor driven unit hydraulic pressure is supplied by a single compact power package mounted under the decking. The hand pump raises the ramp at a rate of $\frac{1}{2}$ inch per stroke per second, and the motor driven unit at approximately 1 inch in 0.6 second. The ramp is manufactured by William Ehlers.



Circle 219 on Reader Service Card for more information

THE "Easy-tote" DEPARTMENTAL TRUCK

USERS LIKE THEM . . . 75% REORDER

75% of users reorder . . . proof of the lower cost, easier handling Easy-totes provide on countless, small, important jobs. Large and small plants use this all-purpose truck to out-manuever and out-perform conventional hand trucks. There's nothing else like it. Three wheel arrangement, swivel caster in rear, low tilting baseplate (16" x 22"), adjustable hook and crank permit one man to handle loads up to 400 lbs. quickly, without lifting injuries. No need to "muscle the load" . . . see 1-2-3-below. See this proven equipment . . . give Easy-tote a trial . . . order one today—only \$28.00. Send for further information.

THE EASY-TOTE PRODUCTS CO.
P. O. Box 86 Buffalo 17, N. Y.

STOP THIS!
USE EASY-TOTE



Turns
In Its
Own
Length

PATENTED

Other Models
and Sizes Available



Circle No. 46 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

Heavy Duty Forkloader

With a lifting capacity of 6,000 pounds, a new 4-wheel drive Forkloader is announced by the Baker-Lull Corporation. It has high flotation tires and a 23-inch oscillation of the rear axle on the longitudinal axis which permits 4-point traction on rough terrain. The engine, located over the rear wheels, ballast counterweights in the rear, and the 100-inch wheel base are designed to provide stability. The loader has power hydraulic steering and hydraulic brakes. A hydraulic circuit with a 1,200 pound per square inch working pressure provides the lift. There are five forward and five reverse speeds. The Forkloader is self transporting.



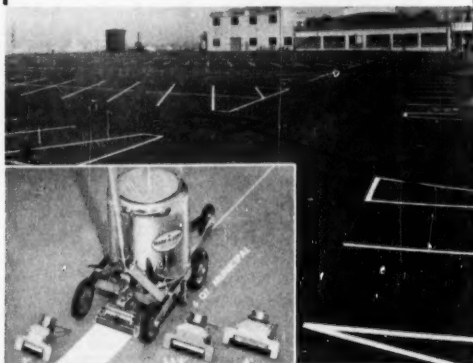
Circle 220 on Reader Service Card for more information

Steer Trailers

Steer trailers in three sizes, ranging in weight from 280 to 325 pounds and having a capacity of 3,000 pounds, have been produced by the Nutting Truck and Caster Company. Designed for maneuverability, the trailers have a platform height

EASY TO USE—EASY TO OWN MARK-A-ZONE STRIPER

Prepaid \$98.50 and less according to size.



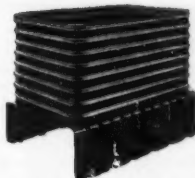
This 400 car lot was striped with one coat on fresh asphalt by MARK-A-ZONE in just 5 hours. You can operate MARK-A-ZONE without training. With the complete kit, including chalk and line with sketches and measurements you can do your own layout and striping.

Costs less than 2c per foot of stripe.
Perfect for inside floors and all surfaces.
Get your complete kit for economical striping.

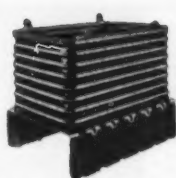
S. B. BEUGLER

3667 Tracy Street, Los Angeles 39, California

Circle No. 171 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953



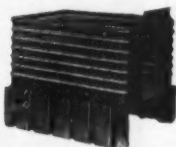
Type PB-120 steel box and skid platform unit.



Type PB-120T box and platform unit with tiering lugs.



Type P-1 skid platform in your choice of standard widths, lengths and clearance heights.

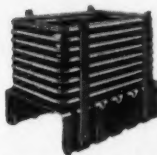


Type PB-650 box and platform units with sliding end door.

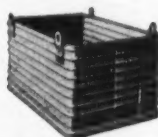
Now...Specify

Republic STEEL BOXES AND SKIDS

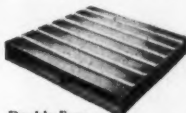
They're the same steel boxes and skids you've always known and used under the "Truscon" name. Now they have a new name: "REPUBLIC". Same ability to carry the load and keep things moving. Same ability to produce savings for you in all phases of materials movement. Same high quality. Backed by the same experience, engineering knowledge, and efficient production facilities.



Type PB-120-L box and platform units with full length lifting lugs.



Type B-80C box units equipped for crane handling; corrugated bottom.



Double-Face Steel Pallets provide rigidity and strength with minimum weight; no sharp edges; economical; three types.

All Republic Steel Boxes, Skids and Pallets fully described in free illustrated booklet. Write us.



**PRESSED STEEL DIVISION
REPUBLIC STEEL CORPORATION**
6202 TRUSCON AVE • CLEVELAND 27, OHIO

Circle No. 130 on Reader Service Card for more information
173

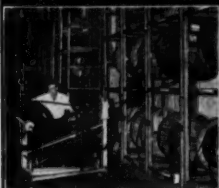
COLLAPSIBLE STOCK BOXES • ROLL RACKS • BULKHEADS

COIL RACKS • REEL RACKS

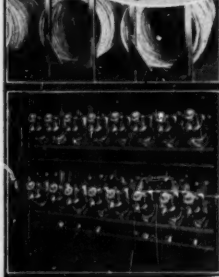
Well Stacked!

Let our rack specialists assist you in planning your new system to incorporate special economies in unit load handling—in production—in storage, regardless of the type material or product or unusual condition involved.

Our strong square tubular EMI racks save floor space and do it in the most efficient way.



Write
for our
catalog



STOCK RACKS •

PALETT RACKS •

PALETS

DOLLY TRUCKS

**EQUIPMENT
MFG. INC.**

21552 HOOVER ROAD, DETROIT 5, MICHIGAN

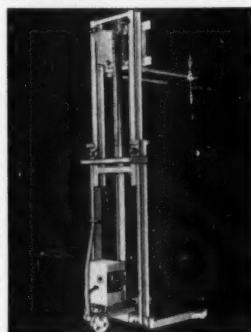
Circle No. 49 on Reader Service Card for more information
174

of 14 inches, bar handles 25 $\frac{3}{4}$ inches above the platform, double ball race swivel casters with fork lead for easy trailing and turning, and large diameter roller bearing wheels with demountable rubber tires. The frames are electrically welded with rounded corners and hardwood platform.

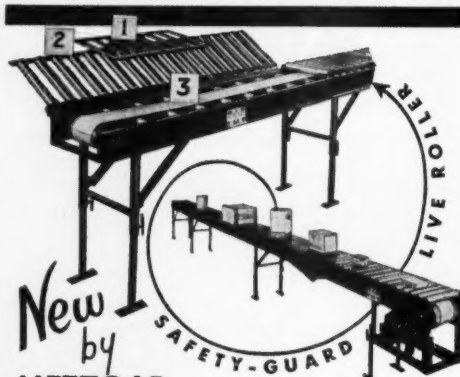
Circle 221 on Reader Service Card for more information

Pallet Stacker

Palletizing in crowded areas such as small retail stores or small distributor warehouses is accomplished by the Raymond Corporation's new telescopic pallet stacker with 2,000 pound capacity. It is designed to handle pallets from 30 to 48 inches wide and as long as 48 inches. The collapsed height is 83 inches. The power elevation has a $\frac{3}{4}$ horsepower, single phase, 60 cycle unit. The stacker has a fifth wheel steer and 8 by 2 and 5 by 2 rear wheels. It is recommended particularly for warehouses where the volume is too small to justify an electric truck.



Circle 222 on Reader Service Card for more information



New
by
METZGAR

1. Safety Guard Bed protects personnel, conveys small packages and flat parts.
2. Live roller bed easily removable for cleaning or to convert to belt conveyor.
3. Drive controlled by shimming between beds 2 & 3 to more easily hold back load without cutting power.

STANDARD
11 $\frac{1}{2}$ ", 15", 18", 24"
WIDTHS
—
ANY LENGTH
220-440 Volt
60 Cycle
3 phase motor

WRITE FOR DETAILS

METZGAR CO.

METZGAR

MFGS. OF WHEEL & ROLLER GRAVITY &
LIVE ROLLER CONVEYORS • POWER BELT
CONVEYORS • SWITCHES • ACCESSORIES
& REEL DOLLIES

423 Douglas, N. W.

GRAND RAPIDS 4, MICH.

Circle No. 105 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

New 2-Way Industrial Radio

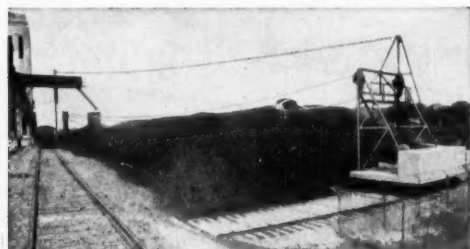
Manufactured by General Electric Company, this 2-way radio set is said to be specifically designed to provide superior communications in the material handling field. The unit is intended for use in the Low Power Industrial licensing classification established by the F.C.C., and is smaller and lighter than units previously available for use in this classification. It measures about 20 inches long, 8 inches wide, and 7 inches high. It weighs about 20 pounds. Plug-in power supplies are provided for either 6 or 12-volt D. C. or for 117-volt, 60 cycle A. C. operation. A converter is available for operation of the unit on vehicles having 26 to 40-volt D. C. power available.

Circle 223 on Reader Service Card for more information

Shovel and Crane

Better weight distribution is said to be achieved in the design of the LIMA Type 44, one cubic yard shovel or 25-ton capacity crane pro-

MOVE MATERIALS—faster, cheaper



CRESCENT Buckets
1/3 to 15 cu. yd.

with a SAURMAN SCRAPER

With just one man at the controls, a Saurman Drag Scraper handles a difficult job of stockpiling, pit excavation, stripping, waste removal, pond cleaning, etc. . . and saves you money.

Above picture shows a Saurman Scraper machine with movable tail tower designed for stacking out and reclaiming large tonnages at a rapid rate. This is one of six basic types of Saurman stockpiling machines.

First cost is reasonable. Maintenance is simple and inexpensive. Flexible range to suit your requirements. Electric, gasoline or diesel power. Write today for engineering advice and catalogs on your material handling problems.

SAURMAN BROS., INC.

540 S. CLINTON ST.
CHICAGO 7, ILLINOIS

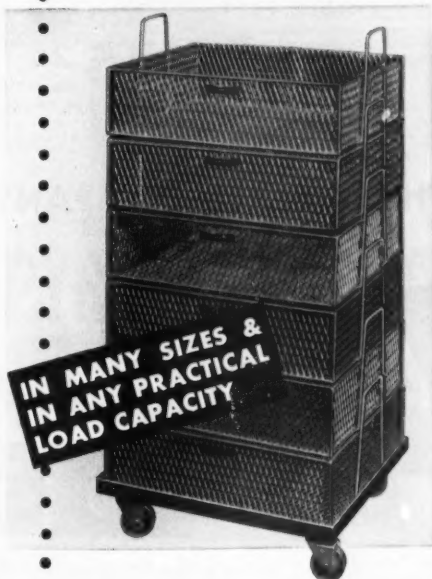
Circle No. 136 on Reader Service Card for more information

FLOW • SEPTEMBER, 1953

ROLLWAY[®]

BASKET STACKS

THE NEW NAME IN MATERIALS HANDLING



BASKET STACKS

with new features
and favorably priced
WIN WIDE APPROVAL
AT MATERIALS
HANDLING SHOW

Write today for
literature and prices

H

OFFMAN COMPANY

2584 W. PHILA. ST., YORK, PA.

- Safe, sturdy, durable—backed by manufacturer with 33 years experience making materials handling equipment.
- Stack-Lock design. Handles of each basket nest into handles of basket below locking stack safely together.
- Can be supplied with either castor dolly, or fork-lift pallet.
- Baskets, dollies or pallets supplied separately or in combinations, one or a thousand.
- Baskets made especially to suit your needs—any size, with dollies or pallets for single or multiple basket stacks.

Circle No. 176 on Reader Service Card for more information

Circle No. 89 on Reader Service Card for more information

CUT MAINTENANCE COSTS ON THESE TOUGH JOBS



- ★ CONVEYOR BELT TIGHTENING
- ★ PULLING WIRE IN CONDUITS
- ★ HOISTING MOTORS, SHAFTS, GEARS
- ★ CHANGING BATTERIES
- ★ MOVING MACHINERY
- ★ OPENING BOX CAR DOORS

The rugged 1½ ton capacity LUG-ALL Winch-Hoist will reduce your maintenance costs in these simple direct ways.

DO THE JOB WITH FEWER MEN:

That's true—because the LUG-ALL weighs under 10 lbs., is compact and compact—yet outpulls five (5) men on a rope block rig.

DO THE WORK FASTER:

Light weight helps a lot. Getting to the job and setting up is definitely easier. And the built-in pulley block with triple hook system works in any direction. There is always a LUG-ALL way to do the job.

Users are enthusiastic. Mr. C. T. Dulicreuil of Akron Brass Mfg. Co., Wooster, Ohio, says: "Of all the labor saving devices I have purchased in the last 18 years, our two LUG-ALLs have drawn the greatest praise from the men in the shop."

ONLY \$35.25
FOR FACTORY
COMPLETE WITH 10 FT. OF CABLE

ORDER ONE TODAY—or request fact packed BULLETIN #116. Just off the press, it's yours for the asking.

LUG-ALL DATA

Alloy frame withstands 5 ton load. Flexible aircraft cable. Stainless steel springs. Bearings rated for life. Safety handle prevents overload. Cable stores out of way on drum. Interlocking pawls never slip.

GUARANTEED

Every LUG-ALL guaranteed one year against defects in workmanship and materials.

PROMPT DELIVERY

THE LUG-ALL COMPANY

WYNNWOOD 19, PENNA.

duced by the Construction Equipment Division of the Baldwin-Lima-Hamilton Corporation. Four front rollers mounted in tandem on equalizer beams, and two rear rollers mounted on rigid supports are said to increase the area of weight distribution of the twin roller paths. Main machinery and power plant is kept well to the rear of the center line of rotation to keep weight to a minimum. The shovel is equipped with a 20-foot boom and 18-foot dipper handle. Crane booms are available up to and including 100 feet, less jib.

Circle 224 on Reader Service Card for more information

Power Sweeper

An industrial power sweeper reported to pick up dirt, dust, metal chips, sand, screws and other debris over more than 100,000 square feet in an hour, has been developed by the G. H. Tennant Company. Fifty-four inches wide, with a side brush, the machine sweeps a 36-inch path at 6 miles an hour and turns on a 5-foot-radius. With no gears to shift, the Maxitorq clutch is controlled by a single foot pedal. The side brush permits cleaning flush with walls, curbs and fences



4 MEN ON A RAMP



Replaced by 1 and a SERVICE LEVELER

Here's the Story of Actual Manpower Savings by One Progressive Company

When the Canadian Line Materials Co., of Scarborough, Ontario, used a ramp to reach the level of their loading dock, "it was taking three or four men to shove even the smallest load up the ramp." Now, with the Service LEVELER installation pictured at right, only one man is required to move even capacity loads onto the dock. This saves the

wasted time and distraction from other duties of at least two men for every heavy shipment made... a substantial, worth-while manpower savings.

Find out how the LEVELER can cut your costs and save strain on men and mobile equipment in loading trucks and cars, lifting to different floor levels, etc. Write for detailed information today.

See Service for Specials Versatile design permits most Service lifting equipment to be made up as low-cost semi-specials to fit your exact needs. We'll be glad to discuss your requirements.

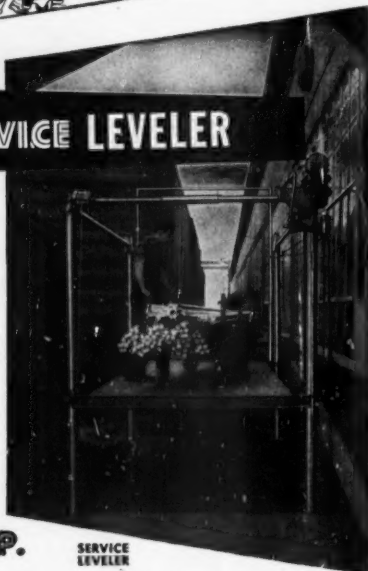


SERVICE CASTER & TRUCK CORP.

Executive Offices: Albion, Michigan
Plants at Albion, Michigan and Somerville 43, Mass.

See Your Classified Telephone Directory for Nearest Distributor.

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SERVICE LEVELER

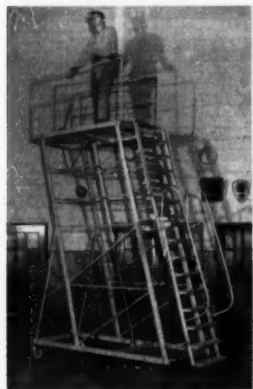
Capacity — 4000 lbs.
Lift — 5'
Platform sizes — 5' to 12'
Portable and stationary

and areas under guard rails. Hopper loads as heavy as 700 pounds may be dumped in 30 seconds. It has 12-inch wheels for smooth riding and is powered by a 7.3 horsepower air cooled gas engine.

Circle 225 on Reader Service Card for more information

Hydraulic Stand

Hydraulic platform stand to provide easy access to elevated levels is announced by the Scaf-



fold Equipment Company. Portable and light weight, it is designed to hold 2,000 pounds over an 18 foot square deck area. Made of all welded carbon steel tubing, it consists of eight sub-assemblies that can be erected in 15 minutes. Knocked down, it is easily stored or moved. Either a three foot or five foot hydraulic ram with a standard

"Power Pak" hand pump provides the lift. It is elevated at 2 feet a minute and lowered in a few



ASHWORTH

Process Belts

... engineered for the Specific End Use are designed to Keep Your Product on the Move, provide long life and low maintenance. Fabricated from carbon steel, aluminum coated steel, low chrome-silicon alloys and nickel-chrome analyses as determined by the end use.



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ILLUSTRATED
CATALOG 59F

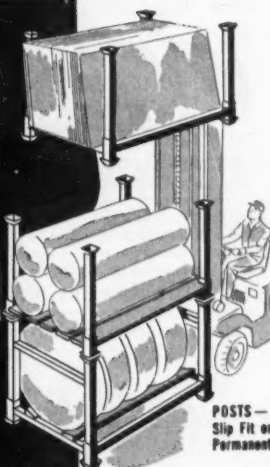
ASHWORTH BROS., INC.
METAL PRODUCTS DIV. • WORCESTER, MASS.

Sales Engineers:

Buffalo • Chattanooga • Chicago • Cleveland • Detroit • Kansas City
Los Angeles • New York • Philadelphia • Pittsburgh • Rochester
Seattle • St. Paul • Tulsa • Canadian Rep., PECKOVER'S LTD. • Toronto • Montreal

Circle No. 14 on Reader Service Card for more information
FLOW • SEPTEMBER, 1953

75%
more
storage
in many
areas
using



Paltier
"TIERS OF RACKS"

PYRAMID RACKS

PATENTED

SAVE SPACE . . .
and YOU SAVE DOLLARS!

PALTIER PYRAMID RACKS are storing as much as 75% and more crushable, bulky and irregular shaped items in the same storage area - in industry after industry. They save their cost in no time at all.

A Paltier User Says:

"We are now able, in one operation, to load and unload various colors or styles of asphalt or asbestos shingles while under previous systems it sometimes required movement of five to eight stacks of material to obtain the pallet where the correct item was stacked!"

— a real time saver!

Ask Us!

A Paltier storage engineer will be glad to show you how you can save storage space, too, with the Flexible Paltier System. Ask us, without obligation.

Write for 16-page Catalog

THE **PALTIER** CORPORATION
1709 KENTUCKY ST.
MICHIGAN CITY, IND.

Circle No. 119 on Reader Service Card for more information

Circle No. 35 on Reader Service Card for more information.

Save time! Prevent accidents!

LIFT AND DUMP

MECHANICALLY

**BAGS
BARRELS
DRUMS
BOXES**

REDUCE HANDLING COSTS with a Cesco Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

ESSEX CONVEYOR, INC.
101 Golden Street • Newark, New Jersey
COLSON EQUIPMENT & SUPPLY CO.
1317 Willow Street • Los Angeles 13, California



seconds. Five or eight inch rubber tire brake lock castors provide mobility. Hand guard rails, safety tread decking and stairing, and thumb screw safety locks on the legs are safety factors.

Circle 226 on Reader Service Card for more information

Manual Hoister

Operated by hand, two new Handy Hoister models lift 500 and 1,000 pound loads. The planetary gear winch maintains loads in the lifted position without slipping. The smaller model is 71 inches high and 35¼ inches long with a platform two feet square. The larger is 76 inches high, 42½ inches long with a 24 by 30 inch platform. The platforms may be replaced by lifting arms or platforms of cradle or roller types. The operating mechanism is enclosed in a dust and moisture-proof drum. Lewis-Shepard, the manufacturer, recommends the Hoister chiefly for materials handling in maintenance.

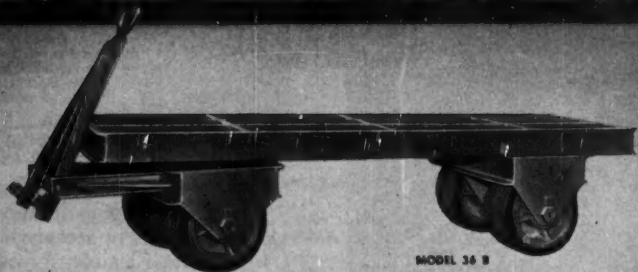


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PREMIUM MATERIALS • CUSTOM DESIGN • SUPERB WORKMANSHIP

JAKES

America's Finest Industrial Trucks and Trailers



JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

Nashville 9, Tennessee

Circle No. 83 on Reader Service Card for more information

For Light Packages

A shelf truck recently introduced by Leebaw



Mfg. Co. has been engineered without intermediate supports, eliminating obstructions during loading and unloading. Shelves are removable for easy cleaning and replacement. The truck is the first of a new Model SH series and is available

in several shelf sizes. Standard models are mounted with a 4-inch swivel caster on each end and two 5-inch rigid casters in the center, or 4-inch swivel casters in each corner.

Circle 228 on Reader Service Card for more information

General-Purpose Conveyor

A general-purpose conveyor, the Model TL Versaveyor, especially adapted to loading and unloading operations, is manufactured by The Belt Corporation. According to Belt engineers, one of the outstanding advantages of the equipment is the way it can be stored on a busy shipping dock in a minimum of space, and yet remain

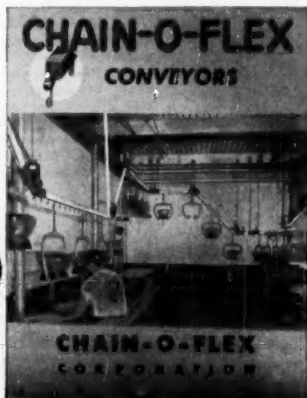
CHAIN-O-FLEX

**The Flexible, Power-Driven
OVERHEAD CHAIN CONVEYOR**

Presents Series "A"

A Light-Duty System with ALL of the BIG FEATURES!

- Flexibility Practically Unlimited
- No Moving Parts on the Chain
- Completely Enclosed and Protected
- Low Initial Cost
- Low Operating Cost
- Minimum Maintenance
- Highest Quality Materials Throughout
- Easily Installed or Moved
- Short-Radius Returns
- Self-Cleaning



For complete details on these and many more outstanding features of CHAIN-O-FLEX CONVEYORS send for Catalog No. 251—today!

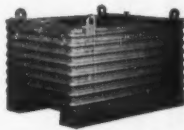
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FLOW • SEPTEMBER, 1953



**logged BRUSCO
handling equipment
increases efficiency**

No. 558 BRUSCO CORRUGATED STEEL BOXES

Save floor space — stack safely from floor to roof. Four way entry for fast, efficient handling. Equipped with crane lugs for movement by crane. Fabricated from heavy gauge corrugated steel to give added rigidity and maximum strength. Thoroughly and securely arc welded for longer, maintenance free life. Made in various sizes and load capacities to suit your requirements.



No. 559 BRUSCO CORRUGATED SKID BOX

Saves valuable floor space and speeds production. Made in all sizes and various gauges of steel to fit any load capacity. Stack from floor to roof.



No. 1210 BRUSCO SELF DUMPING HOPPER

Speeds production and saves labor in handling parts and materials in your plant. Easy to move and simple to operate. Hopper is fabricated of heavy steel plate thoroughly reinforced. This unit is equipped with a new, cast steel rocker and hardened pins for longer service. Made in ½, 1, 1½ and 2 cubic yard capacities. Underclearance optional.



Write today for new Bulletin No. 500 presenting the most complete line of Part Boxes and Brusco Self Dumping Hoppers on the market.

Brusco

HANDLING EQUIPMENT

BRUMMELER STEEL PRODUCTS CORPORATION

1410 Ionia Ave., S. W. Grand Rapids, Michigan

Circle No. 23 on Reader Service Card for more information

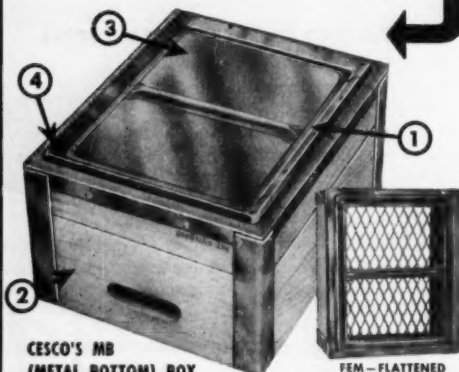
Cesco's TOTE-SHOP BOXES

...Do Your Job • EFFICIENTLY • EASILY • ECONOMICALLY

ON CONVEYORS, PALLETS, HAND TRUCKS,
SKID PLATFORMS, OR WHAT HAVE YOU



1. Heavy Duty Strut ... Prevents Sag ... Permits Bottom Flex ... Distributes shock.
2. High Grade Hard Wood Lumber .
3. (FM) Flat Metal Bottom ... likewise available in open type bottoms FEM-FPM-WM illustrated below.
4. Specially designed "Bottom Stacking Runner" ... One piece ... Rounded Corners (No Mitered Joints - No Distortion).



CESCO'S MB (METAL BOTTOM) BOX

(Prices net - per box)	MB-20	MB-24
Lots of 2000.....	\$2.65	\$3.00
1000 — 1999.....	2.68	3.03
500 — 999.....	2.71	3.06
250 — 499.....	2.76	3.11
100 — 249.....	2.81	3.16

2 STANDARD SIZES

MB-20: 14 1/4" x 11 3/4" x 9 3/4"
MB-24: 17 1/4" x 11 3/4" x 9 3/4"

F. O. B. Northampton, Mass.

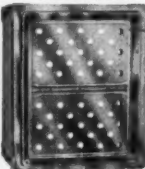
CESCO'S WB (WOOD BOTTOM) BOX

Depending upon the material packed and the handling method stock sizes will accommodate loads up to 200 lbs.; possibly greater.

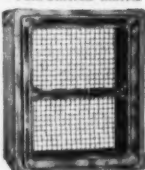
- Ruggedly constructed... steel reinforcing features of zinc coated prime stock... Self Stacking... convenient hand holes
- Binding rivets PLUS corner lock style yields maximum rigidity

Write today for quotations on special sizes
... Please submit specifications.

FEM — FLATTENED EXPANDED METAL



FPM — FLAT PERFORATED METAL



WM — WIRE MESH

CESCO'S WB (WOOD BOTTOM) BOX

(Prices Net - per box)	WB-1	WB-2	WB-3
Lots of 2000	\$1.96	\$2.14	\$2.28
1000—1999	1.99	2.17	2.31
500—999	2.02	2.20	2.34
250—499	2.07	2.25	2.39
100—249	2.12	2.30	2.44

No. 1 size — (I.D.) — 14 1/4" x 11 3/4" x 9 3/4"
No. 2 size — (I.D.) — 18" x 11 3/4" x 9 3/4"
No. 3 size — (I.D.) — 20" x 11 3/4" x 9 3/4"

F. O. B. Northampton, Mass.

• Wire Baskets • Special Pallets • Tote Trays

CESCO CONTAINER CO.

475 Fifth Avenue
New York 17, N. Y.
Factory: Northampton, Mass.

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180

ready for immediate use. It is constructed on a heat-treated aluminum alloy frame capable of sustaining a 300-pound distributed load. It weighs approximately 235 pounds and is 10 feet long.

Circle 229 on Reader Service Card for more information

Truck Crane

The model 1014 made by Unit Crane & Shovel Corp. has a lifting capacity which exceeds 12 tons at a 10 foot radius and is rated at 1/2 yard as an excavator. Equipped with a 30-foot boom, its weight is approximately 37,550 pounds. The overall width of the unit has been held to eight feet. The crane carrier is designed and built by Unit as well. It has a 35 mph road speed and has five forward speeds and one reverse. The model 1014 is convertible to all attachments and is available with "one-man" or dual control operation.



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GRAND FORK LIFT HAND TRUCK with VARILIFT

Lift Stacker
6158



... the 4-Speed
Hydraulic System
that Fits Lifting
Speed to Load

The new Grand Lift Stacker is a man-saving hand truck which moves and lifts heavy loads smoothly and safely. For warehouse stacking, for loading and unloading trucks, for handling boxes, barrels, dies, telephones and hundreds of similar loads, the Lift Stacker is industry's most useful tool!

Lift Stackers are compact, easy rolling and may be used on low load limit floors. The sensational new Varilift speeds up handling of light loads and unloading operations by as much as 400%.

40 Grand models are available to meet practically any hand truck requirement with capacities up to 3000 lbs. and lifting heights to 98 inches in either manual or electric hydraulic lift types.



Electric Lift Stacker
Model 7158



Shop Caddy
Model 4036

Your Grand distributor will gladly demonstrate in your plant.

Write or wire for complete information.



ALLIED MFG. & SALES CO.
301 N. WELLS ST. • CHICAGO 6, ILL.

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FLOW • SEPTEMBER, 1953

Green Belt

A green, abrasion resistant conveyor belt to reduce eye fatigue when inspection of parts assemblies requires close work is announced by the Main Belting Company. The belts are available up to 132-inch widths.

Circle 231 on Reader Service Card for more information

Bin Storage Units

A line of bin storage units with quick and easy shelf adjustment has been developed by Berger



Manufacturing Division of Republic Steel Corporation. The line was developed to provide versatility and flexibility in storing automotive parts and all types of small equipment in a wide variety of industrial

stockrooms. The bins, which are 36½ inches wide, 12½ inches deep and 84 inches high, contain heavy-gauge steel. The adjustable shelves are spaced on 1-inch centers for dividers, have heavy-duty lugs at each corner which fit into slots in the front uprights and back formations, providing rigid four-point suspension. Slots are



THE "Handy" CASE TRUCK
for WAREHOUSES
DELIVERY TRUCKS—
OFFICES—STORES—
INSTITUTIONS—
GENERAL USE

Here's a light, strong, easy-to-use truck for leverage handlers, shop receiving rooms, retail stores, etc. Ideal for use on delivery trucks. Large, quiet, 10" semi-pneumatic wheels absorb jars, roll easily over curbs, and climb stairs. Perfectly balanced for easy handling of cases, boxes, cartons, kegs, cylinders and all moderate-weight loads. Model No. 51, shown above, has Hyatt roller bearing wheels equipped with grease fittings.

Visit Our Booth No. 961 at the 5th National Materials Handling Exposition, Philadelphia — May 18-22.

THOMAS TRUCK & CASTER CO.

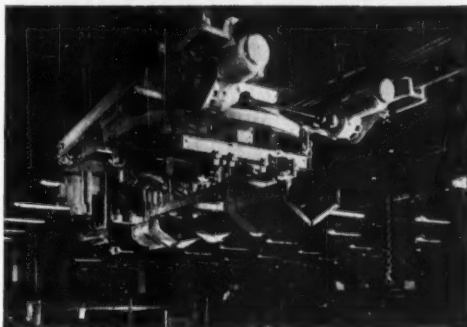
419 Mississippi River
KEOKUK, IOWA



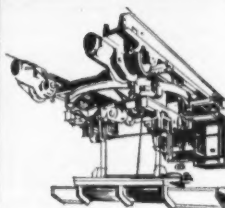
Send
for Free Catalog
to see complete
line of
Case Trucks.

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INCREASES FLOOR CAPACITY 50%



**OVERHEAD MONORAIL
SYSTEM PERMITS
INSTALLATION OF 50%
MORE SCREW MACHINES
—WITHOUT EXTRA
BUILDING**



A large manufacturer of farm implements solved "expansion pains" in the automatic machine department by installing a Loudon Monorail System to handle bar stock.

In addition to increasing by 50% the number of machines in the same floor area, the labor force in this department was cut from 9 men to three men.

"Down time" from shortage of raw stock has been virtually eliminated, since the carrier cab is in continuous telephone contact with a dispatcher, who directs the supply of bars to machines.

All functions are motor driven and controlled from the cab. The hoist can be rotated 90° to permit accurate positioning of the stock in the machine racks.



FREE ILLUSTRATED BOOK

Case histories telling how Loudon Monorail Systems have saved time and money for widely different kinds of industries are described and pictured in a new book called, "ECONOMICAL MATERIAL HANDLING". Write for your copy.

THE LOUDON MACHINERY COMPANY

7112 S. Court St., Fairfield, Iowa

Loudon

OVERHEAD MATERIAL HANDLING

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Circle No. 1 on Reader Service Card for more information



For Handling of Loads Up to One Ton

If real economy, safety and ease of operation are of interest to you, check into Abell-Howe's new FLEXP-CRANE. You can buy it complete with hoist and other accessories or assemble it yourself from a FLEXP-CRANE "kit".

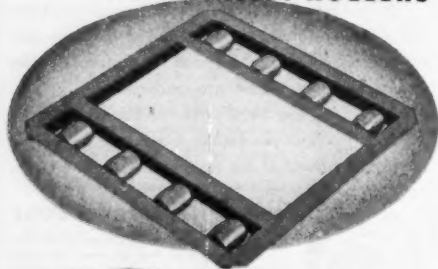
Bulletin F-120
Gives You All the Details
Write for It Now

The Abell-Howe line includes a wide range of motorized and hand operated cranes, runways, monorails, electric hoists, storage racks and accessories.



ABELL-HOWE CO. 53 W JACKSON BLVD
CHICAGO 4, ILLINOIS

Something New ... IN PALLET ROLLERS



The ACE "TRUCKER"

Low cost—light weight—easy rolling "Trucker" Pallet Roller—for trucks, terminals, warehouses, shipping and receiving departments, etc. Saves time, labor and equipment delay costs. Also in swivel models. Ask for Eng. Bulletin 105T.

FRANK L. ROBINSON COMPANY
Industrial Engineers • Manufacturers • Distributors
LATHAM SQUARE BLDG. OAKLAND 12, CALIF.

Distributorships available

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182

spaced on 1½-inch centers for the uprights and back, permitting any desired shelf spacing in multiples of 1½ inches. Any number of these units may be bolted together into a single, rigid combination for the greatest number of possible uses.

Circle 232 on Reader Service Card for more information

Portable Lift Truck

Safeway Industrial Equipment Corp. announces its powerful new portable lift truck designed for maximum safety with one man operation. Three sizes are available with lifting heights of 68, 80 and 100-inches. All have a lifting capacity of 1250 pounds. The hydraulic system is powered by an automotive type battery and is equipped with a built-in charger with automatic cut-off and trickle charge. An electronic switch cuts off power at maximum height to prevent jarring of the load and damage



Hamilton

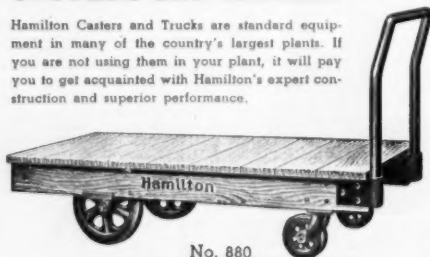
INDUSTRIAL TRUCKS

There's no substitute for experience and skill. Hamilton Floor Trucks are dependably good because the men in our organization have been building floor trucks for 50 years.

Hundreds of styles and sizes to choose from—platform trucks, two-wheel hand trucks, box trucks, stake trucks, shelf trucks, wagon trucks, dollies, barrel skids, lift truck system, etc. Special trucks, of wood or steel, designed and built to meet individual requirements.

CASTERS and WHEELS

Hamilton Casters and Trucks are standard equipment in many of the country's largest plants. If you are not using them in your plant, it will pay you to get acquainted with Hamilton's expert construction and superior performance.



No. 880

Write for Catalog Today

THE HAMILTON CASTER & MFG. CO.
1672 DIXIE HIGHWAY HAMILTON, OHIO

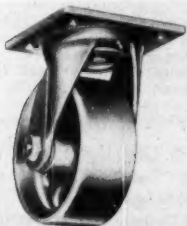
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FLOW • SEPTEMBER, 1953

to the hydraulic system. A "snap-on" platform easily converts the truck from fork type to platform type. A hand brake prevents movement of the truck during loading and stacking and also permits better control when descending an incline.

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Light Weight Casters

Light weight casters with raceways hardened to Rockwell 50-C and forks and top plates said to be unbreakable are announced by the Service



Caster and Truck Corporation. Known as PressWeld Casters, they are designed for dollies, racks, box trucks and similar moderate duty usage. They are available in 3 1/4, 4, 5, 6 and 8-inch wheel sizes, with wheels of

Ni-Steel, rubber or molded plastic. They have hollow bolt and nut type axles with the heat treated king bolt 5/8 inch in diameter. The 3/16 inch thick legs are welded to 1/4 inch thick carbon steel fork.

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HANDLING BULK MATERIALS? "TAKE IT UP A FLO-TUBE"



To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.



The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

Hopper level maintained by "off-on" automatic switches. Exposed end for pick-up.

CANTON STOKER CORP.

SPECIALISTS IN AUTOMATIC COAL FIRING,
HANDLING AND CONTROL EQUIPMENT
108 ANDREW PLACE S. W. • CANTON, OHIO

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now! stop stoppage

in bins and
hoppers with



... the only device that
feeds stubborn materials
uniformly and noiselessly
from bins and hoppers by
positive displacement

PneuBin is a new but proven solution to the common, costly bin-flow problem. Neoprene panels, pulsating inside the bin walls, will feed the most difficult materials ... from soap to salt, cork to coal, coarse lumps to micron fineness.

PneuBin moves the contents, not the bin ... prevents arching and funneling, eliminates noise, saves bin repairs, permits closed tops. PneuBin succeeds where other devices fail.

Write for "Flow Stoppage Report" form ... no obligation.

PneuBin is a product of GEROTOR MAY CORPORATION, Baltimore 3, Maryland ... manufacturers of

GEROTOR

hydraulic
pumps
and
motors

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SHELLCREASE
flexible
CORRUGATED BOARD

PERMA-BOUND
WITH **CSF/417**

at no additional cost!

The sensational SHELTON Development that makes SHELLCREASE retain its cushioning quality even after 24 hours of submersion in water. All other single-faced corrugated quickly separates after a few minutes exposure to moisture rendering it useless. Meets all requirements of Govt. Specs. LLL-F-291. Write Dept. FL-9 for samples of complete line.

Shelton
Manufacturing Company, Inc.
501 Ferry Street Newark 5, N. J.

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USED EQUIPMENT — MEN — JOBS — LINES

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

FOR SALE

MUST SELL

PLANT SURPLUS

ON FORK LIFT TRUCKS & HOIST
2000# Clark Clipper 1943 Model, 36" forks, 10' lift.

2000# Clark 1948 Model, 40" forks, 12' lift.

2000# Hyster 1951 Model, pneumatic tires, 36" forks, 10' lift.

3000# Clark 1941 Model, 48" forks, 10' lift.

4000# Automatic 1947 Model, 103" lift, Ready Power unit.

2-ton Whiting Electric Hoist, 3/60/-220 volts, 1943 Model, 20' per minute.

All of the above machines are in perfect working condition and can be seen in operation. Will accept offers on any or all. JOCELYN IRON & STEEL CORP., 2847 S. Kedzie Ave., Chicago 23, Ill., Lafayette-3-7343.

Transfer Platforms—2000—27" x 41" x 9"; 150—23" x 41" x 9"; 7 1/2" clearance, steel frames; 2" x 2" x 1/4" angle

iron legs set in 8" from end. Subject to prior sale. Eastman Kodak Company, Kodak Park Works, Surplus & Salvage Sales, Rochester 4, N. Y.

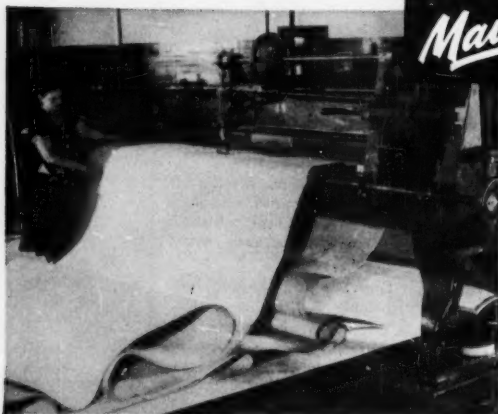
7 1/2 ton electric overhead crane; 55-foot span with 250 feet crane runway. Nottingham Steel Co.

4510 Division Ave., Cleveland 2, Ohio
Phone ATLantic 1-5100.

MAKE GOOD USE of the Reader Service Card bound into each issue of FLOW to get complete details on the various items which are featured. Just circle, or write in, the corresponding number that appears below the items on the card, fill in your name and address, and drop it in the nearest mail box. We pay the postage.

W I D E or N A R R O W

you are sure of the best, when you specify



A 4-ply, 60-foot endless belt, 96 inches in width, is being stitched on one of the largest sewing machines in the world at the Main plant.

Main CONVEYOR BELTING

Whether you need a conveyor belt that is only one inch wide or several feet in width, you can depend on the **RIGHT** belt for the job when you specify Main belting.

Only Main makes conveyor belts *in any width up to 132 inches*—quality belts that give long, economical service.

Get the facts on the complete line of Main conveyor belting. Contact your Main distributor or write for a copy of the Main Belting Bulletin.

Main **BELTING COMPANY**

1241 Carpenter Street • Philadelphia 47, Pa.

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Revolutionary new Baker

gas-O-matic TRADE MARK fork truck

saves money in 3 ways!

40% less fuel...



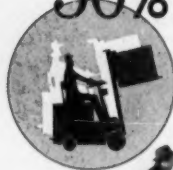
Tests by independent laboratories and industrial plants show gas consumption of about $\frac{1}{2}$ gal. per hour — less than 60% as much as for conventional gas trucks. Economy results from low operating speed of engine, exclusive Baker variable voltage generator and efficient Baker drive motor.

40% lower maintenance...



No clutch or gear-shift, eliminating most common cause of gas truck breakdowns. Dependable electric drive and many new design features mean 40% lower repair costs and 40% less down time.

50% longer life...



Majority of GAS-O-MATIC parts are standard Baker electric truck parts. Government permits tax write off of electric trucks over twice as many years as for gas. With one engine replacement, GAS-O-MATIC should last 10 years or more.



Get the whole story from your Baker representative or write for Bulletin 1344

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota
Material Handling and Construction Equipment

Baker

industrial trucks

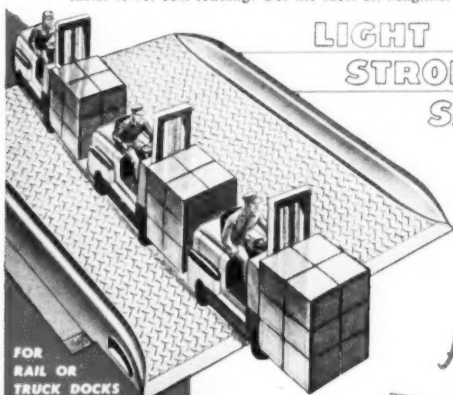
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LOADING OPERATIONS

CHOKED..

Are overtaxed shipping and receiving facilities jamming up the loading dock . . . putting a stranglehold on output? Are efforts to increase production and profits hampered by lack of additional loading capacity? There is one *proved* way to multiply loading capacity . . . eliminate bottlenecks . . . prevent costly tie-ups—*and all without major capital expenditure!* Do as many thousands of leading companies have done. Equip your docks with magnesium-light, magnesium-strong Magliner Dock-Boards! With these low-cost, high output units in operation, you can speed material flow . . . establish faster, easier-access transit between plant and freight carriers . . . and cut loading time to a new low!

Magliner Dock Boards present no expensive installation problem! No fixed inflexibility! Magliners are permanent . . . yet you can move them about, *whenever and wherever you wish!* Fabricated of the world's lightest structural metal, Magliner Dock Boards are easily handled by one man. Of bridge design construction they are capacity rated to handle the heaviest of loads and equipment. Available in 34 standard models, as well as custom engineered to exact requirements. Get the benefits of smoother, faster lower-cost loading! Get the facts on Magliner!



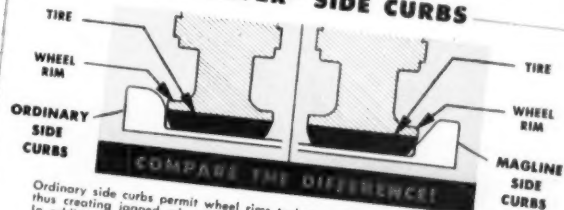
FOR
RAIL OR
TRUCK DOCKS

**LIGHT
STRONG
SAFE**

Magliner
MAGNESIUM
DOCK BOARDS

Another great new First from Magliner!

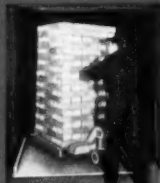
"TIRE SAVER" SIDE CURBS



Ordinary side curbs permit wheel rims to bear against and wear into the curb, thus creating jagged edges which soon result in costly, needless tire damage. In addition, such forceful contact weakens the side curb and shortens service life. Design of the new Magliner "Tire-Saver" side curb specifically prevents metal-to-metal contact . . . wheel-to-curb collision—eliminating the single biggest cause of tire and dock board damage!

EQUIPMENT UNDERCLEARANCE

Low side curbs, proper board length, precise crawling. All combine to insure absolute underclearance for low handling equipment.



LONG SPANS

Ample strength, rigid structure, safe, easy crossover. For all span requirements—short or long!



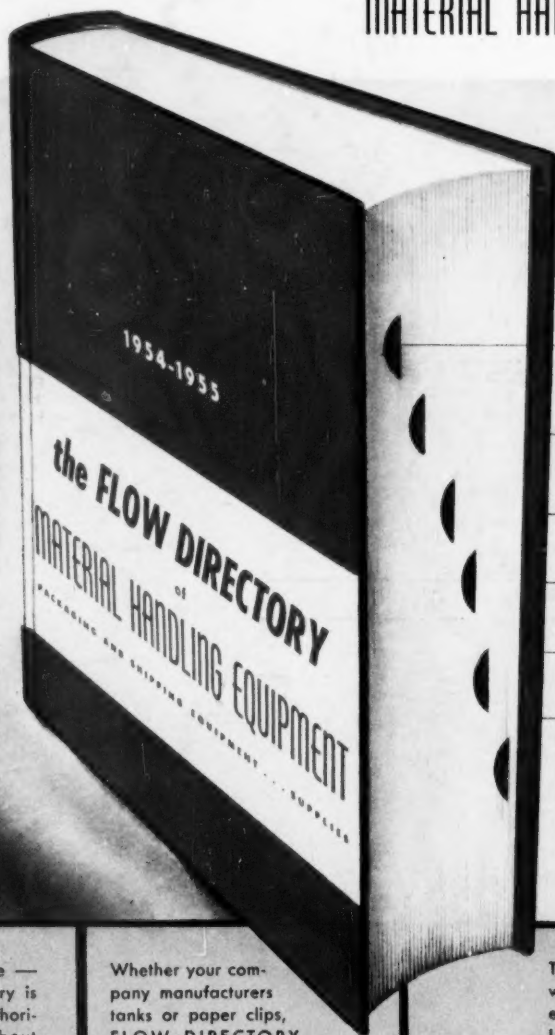
WRITE TODAY for Information Bulletin DB-204R

MAGLINER, INC. • P.O. BOX 346 • PINCONNING, MICH.

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